

**STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
INTERMODAL TRANSPORTATION DIVISION  
ROADWAY ENGINEERING  
ROADWAY DESIGN SECTION**

**APRIL**



**2006**

***CONSTRUCTION  
STANDARD DRAWINGS***



# Arizona Department of Transportation

## Intermodal Transportation Division Roadway Engineering Group

### MEMORANDUM

**To:** All Users of the Roadway Construction Standard Drawings

**Date:** 18 April 06

**From:** Mary Viparina *MAV*  
Assistant State Engineer  
Roadway Engineering Group

**Subject:** C-Standards Update

The October 2004 Roadway Construction Standard Drawings have been revised and updated, and are available for download on the Roadway Design web site at the following address:  
[http://www.azdot.gov/highways/rdwyeng/roadwaydesign/viewable\\_drawings.asp](http://www.azdot.gov/highways/rdwyeng/roadwaydesign/viewable_drawings.asp)

The attached spreadsheet summarizes the changes made to the previous drawings. The changes of note are more fully described below:

- C-02.20 & C-02.30: Revised cut and fill slope dimensions;
- C-05.30, Shts 3 & 4 of 7: Modified PLAN and PERSPECTIVE views to clarify ramp location;
- C-05.30, Sht 7 of 7: Added a PLAN and SECTION views for a brick detectable warning strip;
- C-10.76: Modified SECTION views to depict "F" shape; and
- C-11.10: Re-issued the drawings in four sheets. Sheet 4 shows the clamp designed to enhance the bicycle ridability of the cattle guard.

Design personnel should implement the updated drawings and incorporate them into their project plans. For projects at or near completion, where the inclusion of all new standard drawings is not practical, the 1A Sheet must accurately reflect the correct revision dates for the design. Construction personnel should review the drawing revisions for possible implementation on construction projects.

Please distribute this memorandum to all users within your Group, Section, or District, and arrange for printing of the updated Standard Drawings for those without computer access. Copies of the complete set of Roadway Construction Standard Drawings (either 8-1/2" x 11" or 11" x 17") may be obtained from Engineering Records located at 1655 West Jackson, Room 175, Phoenix, AZ 85007-3217 or by telephoning 602-712-8216.

The updated Construction Standards Index (1A Sheet) and Barrier Summary Sheets are also available on-line at the address shown above.

Please direct questions regarding this memorandum or the updated standards to Kenneth Cooper, Roadway Standards Engineer at 602-712-8674.

MAV/KRC/krc

c: Roadway Engineering Group  
Traffic Engineering Group  
Valley Project Management Group  
Environmental and Enhancement Group  
Districts (10)  
Statewide Project Management Group  
FHWA  
Contracts and Specifications Section  
Construction Group  
Bridge Group

Regional Traffic Engineers (4)  
Materials Group  
Local Government Section  
Engineering Consultant Section  
District Permits Office (9)  
Engineering Records  
Maintenance Group  
Dan Lance  
Sam Maroufkhani  
Doug Forstie

Construction Standard Drawings Revisions – April 2006

<b>STANDARD DRAWING</b>	<b>REVISION DESCRIPTION</b>
C-02.10	Added "Rural" to title
C-02.20	Modified slope criteria – slopes and range. Modified drawing title.
C-02.30	Modified drawing title, slopes, and ranges. Added a note regarding proper standard application.
C-04.10, Sheet 2 of 2	Revised SECTION B-B and POST SLEEVE DETAIL by subduing graphics for post and w-beam guardrail. Revised note at outlet in SECTION B-B to correct references. General Note 4 revised by replacing "in lieu" with "instead."
C-05.12, Sheet 2 of 3	Removed Type 'G' Curb & Gutter from note.
C-05.30, Sheet 1 of 7	Modified General Note 2. Defined elevation of "Top of Ramp Curb" in SECTION B--B. Revised text orientation.
C-05.30, Sheet 2 of 7	Modified General Note 2. Revised text orientation in SECTION A--A.
C-05.30, Sheet 3 of 7	Modified General Note 3. Modified ramp location in PLAN and PERSPECTIVE views. Revised text orientation in SECTION A--A.
C-05.30, Sheet 4 of 7	Modified ramp location in PLAN and PERSPECTIVE views.
C-05.30, Sheet 5 of 7	Modified General Note 3.
C-05.30, Sheet 7 of 7	Added PLAN and SECTION views of brick option Detectable Warning Strip (DWS). Modified PLAN view of non-brick DWS. Added General Note 1. Re-labeled section and detail views.
C-05.50	Revised General Note 6. Rearranged drawings on sheet. Modified SECTION A--A. Revised Std Dwg reference in SECTION C--C. Re-labeled "PLAN VIEW OF SECTION C--C".
C-07.02	Revised General Notes 3 & 4 to correct Std Dwg reference from C-07.05 to C-07.04. Revised drawing titles.
C-10.51	Changed "PLAN VIEW" to "PLAN". Removed slope designation from sidewalk in SECTION views. Changed length of vertical taper from 12½" to 1'-0". Revised text orientation. Added "WITHOUT GUARDRAIL" to title of ELEVATION view of departure vertical taper.
C-10.52	Removed "D" reference and substituted "may" for "can" in General Note 5.
C-10.75, Sheet 1 of 2	Changed "PLAN VIEW" to "PLAN". Removed slope designation from sidewalk in SECTION views. Revised curb-height designation in SECTION A-A from "H" to "h".
C-10.75, Sheet 2 of 2	Changed "PLAN VIEW" to "PLAN". Removed dimensions at right side of PLAN view. Revised text orientation.
C-10.76	Changed "PLAN VIEW" to "PLAN". Revised SECTION view graphics to depict Type 'F' barrier.
C-10.77	Modified PLAN view to correct style and proportion of concrete half barrier and transitions. Modified references to other Std Dwgs.
C-11.10 Sheets 1 through 4 of 4	Re-issued Standard Drawing.
C-15.20, Sheet 1 of 3	Revised sheet number references.
C-15.91 & C-15.92, Sheet 2 of 2	Modified welding notations for ANSI conformance.
C-18.10, Sheet 2 of 3	Modified SECTION views to improve clarity.

**From:** Terry Otterness  
**Sent:** Tuesday, April 25, 2006 11:13 AM  
**To:** Chris Cooper; Urso Penalosa; Said Asad; Tim Wilson; Paul O'Brien; Joseph Warren; Baljeet Chawla; Vincent Li; Steve Mishler; Alfredo Zapata; Ken Brown; Robert Fortune; Kenneth Cooper; Jeff Beimer; LeRoy Brady; Susan Tellez; Robert Miller; Larry Maucher; George Wallace; Jim Delton; John Lawson; Steve Jimenez; John Carr; John Dickson; Greg H. Gentsch; Roger Hopt; George Chin; Chuck Gillick; Reza Karimvand; Daniel MacDonald; John Melanson; Lev Derzhavets; Oliver Antony; Pat Mahoney; Rod Collins; William Lyons; Bill Harmon; Dallas Hammit; David Sikes; John Harper; John Hauskins; Michael Kondelis; Paul Patane; Perry Powell; Richard Powers; Ron Casper  
**Cc:** Mary Viparina; Sam Maroufkhani; Dan Lance; Doug Forstie; Sam Elters  
**Subject:** Construction Std. Drawings- Slope Design Standard Revisions- C-02.20 & C-02.30

Please forward this e-mail notification to all roadway design personnel utilizing the subject Standard Drawings.

Please refer to the updated Construction Standard Drawings (Rev.date 4/06) that were issued today under separate e-mail notification. The maximum fill slope rates for Std. C-02.20 Rural Undivided and Fringe-Urban Highways and Std. C-02.30 Miscellaneous Roadways have been revised from 1 1/2:1 to 2:1. Also, the maximum cut slope rates for these two standards have been revised from 1:1 to 2:1. No slope changes have been made to Std. C-02.10 Rural Divided Highways. These revisions have been coordinated with the Materials Group Geotechnical Design.

The revisions to the slopes reflect what has been the norm for most projects. The 2:1 fill slopes provide a more stable embankment and provide an improved slope rate to establish vegetation and erosion control. The flatter 2:1 cut slope rates will also provide the same advantages. When in rock cuts, Geotechnical Design will continue to provide the maximum slope that can be used by the designer. Also, when cuts are in the higher ranges and there may be a significant project cost involved, Geotechnical Design will provide the designer the maximum slope that can be used to reduce the excavation required. The design process for establishing slope design for a project has not changed. The standard slopes simply provide the initial design slopes and the designer is to adjust the slopes for the project needs considering safety, material type, project costs, slope stabilization and other needs.

Thank you for your attention to these revisions. Please forward this e-mail to all users within your Groups and Districts. Contact your Roadway Group representative for any questions regarding these revisions.

Terry H. Otterness, P.E.  
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Roadway Design Section  
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CONSTRUCTION STANDARD DRAWINGS - INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-01.10	SYMBOL LEGEND (4 SHEETS)	C-10.00	GUARDRAIL MEASUREMENT LIMITS
C-01.30	GENERAL ABBREVIATIONS (3 SHEETS)	C-10.01	GUARDRAIL INSTALLATION, TYPE A AND REFLECTOR TAB
		C-10.02	GUARDRAIL INSTALLATION, TYPE B AND REFLECTOR TAB
C-02.10	SLOPES, RURAL DIVIDED HIGHWAYS	C-10.03	W-BEAM GUARDRAIL, G4(1W) AND G4(2W), BLOCKED-OUT TIMBER POST
C-02.20	SLOPES, RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS	C-10.04	W-BEAM GUARDRAIL, G4(1S), BLOCKED-OUT STEEL POST
C-02.30	SLOPES, MISCELLANEOUS ROADWAYS	C-10.05	W-BEAM GUARDRAIL, G4(MODIFIED), WITH FREEWAY CURB & GUTTER (2 SHEETS)
		C-10.06	W-BEAM GUARDRAIL, NESTED (2 SHEETS)
C-03.10	DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS)	C-10.07	W-BEAM GUARDRAIL, BOLTED ANCHOR (2 SHEETS)
		C-10.08	W-BEAM GUARDRAIL, END ANCHOR
C-04.10	SPILLWAY, EMBANKMENT (2 SHEETS)	C-10.20	THRIE-BEAM GUARDRAIL, G9, BLOCKED-OUT STEEL POST
C-04.20	DOWNDRAIN, EMBANKMENT (2 SHEETS)	C-10.30	GUARDRAIL TRANSITION, W-BEAM TO CONCRETE HALF BARRIER, 32" TYPE 'F'
C-04.30	SPILLWAY LENGTH TABLE	C-10.40	CONCRETE MEDIAN BARRIER, 32" TYPE 'F', CAST-IN-PLACE
C-04.40	DOWNDRAIN LENGTH TABLE	C-10.41	CONCRETE MEDIAN BARRIER, 42" TYPE 'F', CAST-IN-PLACE
C-04.50	DOWNDRAIN ENERGY DISSIPATOR	C-10.42	GLARE SCREEN, CONCRETE MEDIAN BARRIER (3 SHEETS)
		C-10.50	CONCRETE HALF BARRIER, 32" TYPE 'F' (2 SHEETS)
C-05.10	CURB & GUTTER, CURB, AND GUTTER	C-10.51	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH SIDEWALK
C-05.12	CURB & GUTTER TRANSITIONS (3 SHEETS)	C-10.52	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH GUTTER
C-05.20	CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS)	C-10.53	CONCRETE HALF BARRIER, 42" TYPE 'F', WITH GUTTER
C-05.30	SIDEWALK RAMP (7 SHEETS)	C-10.54	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS (3 SHEETS)
C-05.40	MEDIAN PAVING AND NOSE TAPER	C-10.55	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS (3 SHEETS)
C-05.50	CONCRETE BUS BAY	C-10.70	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CAISSONS (3 SHEETS)
		C-10.71	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CURB & GUTTER (2 SHEETS)
C-06.10	DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS)	C-10.72	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH CAISSONS (3 SHEETS)
		C-10.73	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH GUTTER (2 SHEETS)
C-07.01	PCCP JOINTS (2 SHEETS)	C-10.74	CONCRETE HALF-BARRIER TRANSITION, 42" TO 32" TYPE 'F'
C-07.02	LOAD TRANSFER DOWEL ASSEMBLY	C-10.75	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' TANGENT DEPARTURE (2 SHEETS)
C-07.03	PCCP JOINT LOCATIONS, MAINLINE (8 SHEETS)	C-10.76	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' AT RADIUS, 32" TO 0"
C-07.04	PCCP JOINT LOCATIONS, RAMPS & CROSSROADS (5 SHEETS)	C-10.77	CONCRETE HALF-BARRIER TRANSITION, END TERMINAL, CURB AND GUTTER
C-07.06	TRENCH BACKFILL AND PAVEMENT REPLACEMENT		
		C-11.10	ROADWAY CATTLE GUARD (4 SHEETS)
C-08.20	PAVED GORE AREA	C-11.20	CATTLE GUARD, DRAINAGE
		C-12.10	FENCE, WOVEN AND BARBED WIRE WITH GATES (5 SHEETS)
		C-12.20	FENCE, CHAIN LINK TYPES 1 AND 2 WITH GATES (3 SHEETS)
		C-12.30	FENCE, CHAIN LINK CABLE BARRIER (3 SHEETS)



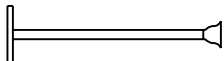



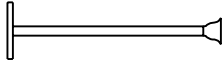
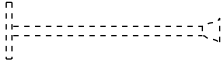


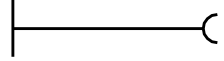
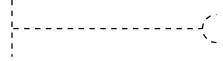

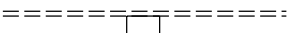
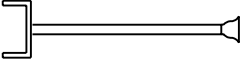
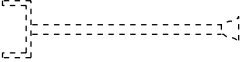


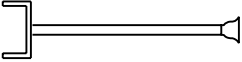

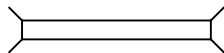
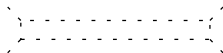
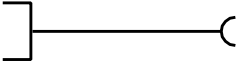
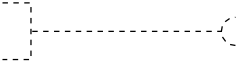
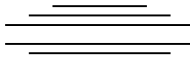

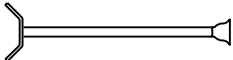
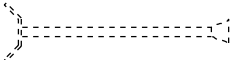
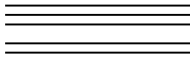
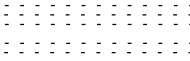
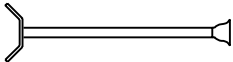
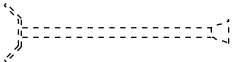
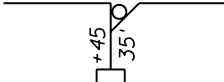
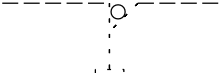
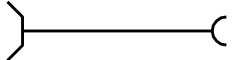

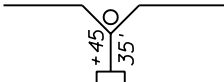
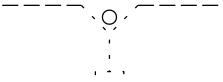
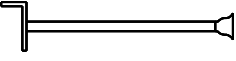
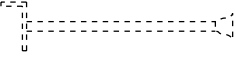


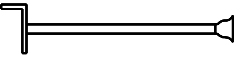
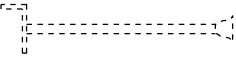


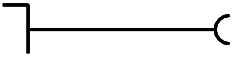
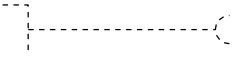


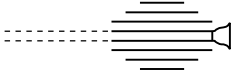


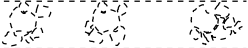
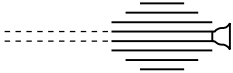

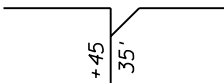
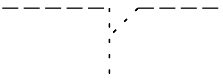
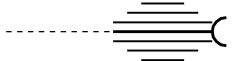

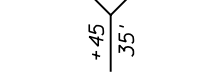
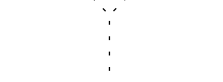
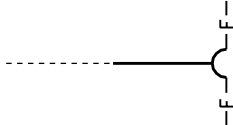


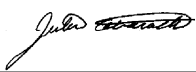
CONSTRUCTION STANDARD DRAWINGS - INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-13.10	PIPE CULVERT INSTALLATION (2 SHEETS)	C-18.10	MANHOLES (3 SHEETS)
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C-13.20	PIPE, REINFORCED CONCRETE END SECTION	C-21.10	SURVEY MONUMENT, FRAME AND COVER, RIGHT-OF-WAY MARKER
C-13.25	PIPE, CORRUGATED METAL END SECTION	C-21.20	SURVEY MARKER
C-13.30	PIPE AND PIPE ARCH, CORRUGATED METAL CONCRETE INVERT PAVING		
C-13.55	PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT		
C-13.60	SLOTTED DRAIN DETAILS		
C-13.65	SLOTTED DRAIN, INSTALLATION DETAILS		
C-13.70	STORM DRAIN, CONNECTION DETAILS		
C-13.75	STORM DRAIN, OUTLET BARRIER GATE		
C-13.76	STORM DRAIN OUTLET AND STORM DRAIN PLUG		
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C-15.20	CATCH BASIN, TYPE 3 (3 SHEETS)		
C-15.30	CATCH BASIN, TYPE 4		
C-15.40	CATCH BASIN, TYPE 5 (2 SHEETS)		
C-15.50	CATCH BASIN, FRAME AND GRATE		
C-15.70	CATCH BASIN, MISCELLANEOUS DETAILS (2 SHEETS)		
C-15.75	CATCH BASIN, DROP INLET		
C-15.80	CATCH BASIN, FLUSH		
C-15.81	CATCH BASIN, SIDE SLOPE		
C-15.90	CATCH BASIN, MEDIAN DIKE (PRECAST)		
C-15.91	FREEWAY CATCH BASIN DETAILS (2 SHEETS)		
C-15.92	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER (2 SHEETS)		
C-16.40	IRRIGATION SLEEVES		
C-17.10	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 1, 2 & 3		
C-17.15	RAIL BANK PROTECTION AT ABUTMENTS, TYPES 4, 5 & 6		
C-17.20	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 7, 8 & 9		

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.10 TO C-01.10, SHEET 1 OF 4	RLF	9/04
2			
3			
4			

	CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
City Limits			Section Corner		
County Line			Survey Control Point		
Forest or Reservation Boundry			Bench Mark		
Property Line			Access Control		
Mid-Section or Quarter-Section Line			Sidewalk, Curb & Gutter w/Depressed Curb (l"=50' or larger)		
Right-of-Way Line			Curb & Gutter with Depressed Curb (l"=100')		
Section Line			Curb, Single with Depressed Area		
Sixteenth Line			Pavement and Sidewalk Edge		
National, State Boundry			Turnout		
Township or Range Line			Top of Cut		
Temporary Construction Easement			Toe of Fill		
Mile Post Marker			Transition, Cut to Fill		
Right-of-Way Marker			Railroad Track (l"=50' or larger)		
Survey Monument			Railroad Track (l"=100')		
Angle Point or PI			Bank Protection		
Centerline, Station Marks			Bridge		
Quarter Corner			Building		

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.11 TO C-01.10, SHEET 2 OF 4	RLF	9/04
2			
3			
4			

	CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
Catch Basin, Curb & Gutter -----			Straight Hdwl w/End Sct, Pipe (I"=20') (All Dia)-----		
Catch Basin, Median Dike -----			Straight Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger)		
Catch Basin, Off Roadway, Flush -----			Straight Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)		
Catch Basin, Single Curb -----			"U" Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Cattle Guard -----			"U" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger)		
Concrete Box Culvert -----			"U" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)		
Dike, Median -----			Wing Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Dike -----			Wing Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger)		
Downdrain, one way -----			Wing Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)		
Downdrain, two way -----			"L" Hdwl w/End Sct, Pipe (I"=20') (All Dia) -----		
Manhole -----			"L" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=42" and larger)		
Manhole, Frame & Cover, Reset -----			"L" Hdwl w/End Sct, Pipe (I"=50' or smaller) (Dia=36" and smaller)		
Retaining Wall -----			Pipe Ext W/End Sct & Berm (I"=20') (All Dia) -----		
Rock Riprap -----			Pipe Ext W/End Sct & Berm (I"=20') (I"=50' or smaller) (Dia=42" and larger)		
Spillway, one way -----			Pipe Ext W/End Sct & Berm (I"=20') (I"=50' or smaller) (Dia=36" and smaller)		
Spillway, two way -----			Pipe Ext W/End Sct Roadway Widening (I"=20')-----		
			<div>APPROVED FOR DESIGN </div>		
			STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		
			REV. 9/04		
			DRAWING NO. 1		
			C-01.10 Sheet 2 of 4		
			APPROVED FOR DISTRIBUTION 		
			SYMBOL LEGEND		

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.12 TO C-01.10, SHEET 3 OF 4	RLF	9/04
2			
3			
4			

CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS		
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
Plan View, Bituminous Pavement.....			Irrigation Ditch, Concrete .....		
Plan View, Concrete Pavement.....			Irrigation Ditch, Earth .....		
Plan View, Graded Surface .....			Irrigation Line (1"=20') .....		
Plan View, Obliterate Pavement.....			Irrigation Line (1"=100') .....		
Plan View, Wood .....			Overhead Power/Joint-Use Line .....		
Section, Asphaltic Concrete Friction Course.....			Overhead Telephone Line .....		
Section, Bituminous Pavement .....			Sanitary Sewer (1"=20') .....		
Section, Concrete .....			Sanitary Sewer (1"=100') .....		
Section, Metal .....			Storm Drain (1"=20') & (1"=50').....		
Section, Wood .....			Storm Drain (1"=100') .....		
Section, Aggregate Base .....			Street Light and with Mast Arm .....		
Section, Ground Line .....			Telephone/Power Pedestal .....		
Ground Line Profile .....			Utility Pole with Down Guy and Anchor .....		
Barbed Wire Fence & Gate .....			Underground Power/Joint-Use Line .....		
Chain Link Fence & Gate .....			Underground Telephone Line .....		
Guardrail & Flared End Terminal .....			Water/Gas Meter Box .....		
Guardrail & Tangent End Terminal.....			Water/Gas Valve .....		
Gas Line .....					

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ROADWAY STANDARD DRAWINGS

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C-01.10

Sheet 3 of 4

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-01.13 TO C-01.10, SHEET 4 OF 4	RLF	9/04
2			
3			
4			

	CONSTRUCTION DRAWING SYMBOLS			CONSTRUCTION DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES		NEW FEATURES	EXISTING FEATURES
Water Line			Depressed Index Contour Line		
Drainage Channel			Depressed Intermediate Contour Line		
Drainage Ditch			Block Wall (1"=20')		
Major Wash			Median Barrier		
Minor Wash			Fire Hydrant		
℄ Grade, Profile			Standpipe		
Hedge			Transmission Tower		
Palm Tree			Windmill		
Shrubbery			Mail Box		
Unclassified Tree			Flag Pole		
Sign, Single Post					
Sign, Multiple Post			North Arrow		
Dimensions					
Visible Outlines, Sections, etc...					
Index Contour Line					
Intermediate Contour Line					

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	RENAMED STD DWG FROM C-01.30 TO C-01.30, SHEET 1 OF 3	RLF	9/04
②			
③			
④			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
A		B (cont)		C (cont)	
Abutment	Abt	Bituminous Mixture	Bit Mix	Corrugated High Density Polyethylene Plastic Pipe	CHDPEPP
Acceleration	Acc	Bituminous Surface Treatment	BST	Corrugated Metal Pipe	CMP
Acres	Ac	Bituminous Treated Base	BTB	Corrugated Steel Pipe	CSP
Aggregate	Agg	Black Steel Pipe	BSP	County	Co
Aggregate Base	AB	Borrow	Bor	Crossing	X-ING
Ahead	AHD, Ahd	Boulevard	BLVD, Blvd	Cross Section	X-SECT
Alternate	Alt	Boundary	Bdry	Crown	Cr
Aluminum	Al	Brass Cap	BC	Cubic	Cu
American Association of State Highway and Transportation Officials	AASHTO	Breakaway Cable Terminal	BCT	Cubic Feet Per Second	CFS
American Concrete Institute	ACI	Bridge	Br	Cubic Yard or Cubic Yards	CY, Cu Yd
American Institute of Steel Construction	AISC	Building	Bldg	Culvert	Culv
American Road and Transportation Builders Association	ARTBA	C		Curb and Gutter, Curb & Gutter	C&G
American Society for Testing Materials	ASTM	Calculated	Calc	Curve to Spiral	CS
Amount	Amt	Cast-In-Place	C-I-P	D	
Approach	Appr	Cast Iron	CI	Deceleration	Dcl
Approximate	Approx	Cast Iron Pipe	CIP	Deflection	Def
Asphalt	Asph	Catch Basin	CB	Deflection of Total Curve	I
Asphalt Rubber	AR	Cattle Guard	CG	Degree of Curve	D
Asphalt Rubber ACFC	ARACFC	Cement	Cem	Delineator	Del
Asphaltic Concrete	AC	Cement Treated Base	CTB	Delta	Δ
Asphaltic Concrete Base	ABC	Center	Ctr	Depressed Curb	DC
Asphaltic Concrete Friction Course	ACFC	Center Line	℄	Design Speed	Des Spd
Asphaltic Concrete Surface Course	ACSC	Center to Center	C to C	Detail	Dtl
Avenue	AVE, Ave	Channel	Chan	Diameter	Dia
Average Daily Traffic	ADT	Class	Cl	Distance	Dist
B		Clear	Clr	Division	Div
Back	BK, Bk	Column	Col	Double	DbI
Backfill	Bkfl	Compact or Compaction	Comp	Drain or Drainage	Drn
Balance	Bal	Complete In Place	C in P	Drainage Area	DA
Bank Protection	BP, Bank Prt	Concrete	Conc	Drawing	Dwg
Barbed Wire	BW	Concrete Box Culvert	CBC	Drive	Dr
Bearing	Brg	Concrete Treated Base	CTB	Driveway	Dwy
Begin	Bgn	Connection	Conn	Ductile Iron Pipe	DIP
Begin Curb Return	BCR	Conduit	Cond	E	
Begin Full Super	BFS	Construct or Construction	Cst	Each	Ea
Bench Mark	BM	Continuous	Cont	Easement	Esmt
Bevel or Beveled	Bev	Coordinate	Coord	East	E
Bituminous	Bit	Corner	Cor	Eastbound	EB
		Correction	Corr		
		Corrugated Aluminum Pipe	CAP		

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ROADWAY STANDARD DRAWINGS

REV.  
9/04

GENERAL ABBREVIATIONS

DRAWING NO.  
C-01.30  
Sheet 1 of 3

①

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG C-01.31 TO C-01.30, SHEET 2 OF 3	RLF	9/04
2			
3			
4			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
E (cont)		G (cont)		M (cont)	
Edge of Pavement	EP	Ground	Gnd	Mile or Miles	MI
Electric, Electricity	Elec, E	Ground Compaction	Gnd Comp	Mile Post	MP
Elevation	Elev	Grubbing	Grb	Miles Per Hour	MPH
Embankment	Emb	Guard	Grd	Mineral Aggregate	MA
End Curb Return	ECR	Guardrail	GR	Minimum	Min
End Full Superelevation	EFS	Guardrail Extruder Terminal	GET	Miscellaneous	Misc
Engineer	Engr	H		Modify or Modified	Mod
Entrance	Ent	Headwall	Hdwl	Monument	Mon
Equation	EQ, Eq	Height	Ht, H, h	Mountain	Mt
Estimate	Est	Height of Instrument	HI	N	
Excavation	Exc	Head Water	HW	National	Nat'l
Existing	Exst	Highway	Hwy	Non-Reinforced Cast-In-Place	NRCIPCP
Expansion Joint	Exp Jt	Horizontal	Horz	Concrete Pipe	
Extend or Extension	Ext	Horizontal Elliptical Reinforced	HERCP	Normal Crown	NC
External	Ext	Concrete Pipe		North	N
F		I		Northbound	NB
Federal	Fed	Improvement	Impr	Number	No
Feet or Foot	Ft	Inch or Inches	In	O	
Feet per Foot	/ft	Include, Included or Inclusive	Incl	Obliterate	Obl
Feet Per Second	FPS	Inside Diameter	ID	Original	Orig
Figure	Fig	Invert	Inv	Outside Diameter	OD
Finish	Fin	Irrigation	Irr	Overhead	OH
Floor	Fl	J		Overpass	OP
Flow Line	FL	Joint	Jt	P	
Footing	Ftg	Junction	Jct	Parkway	Pkwy
Forest	Fst	L		Pavement	Pvmt
Found	Fnd	Laboratory	Lab	Pedestrian	Ped
Frame	Fr	Lateral	Lat	Place	Pl
Freeway	Fwy	Left	Lt	Point	Pt
Frontage	Frt	Length or Length of Curve	L	Point of Compound Curvature	PCC
Furnish or Furnished	Furn	Length of Normal Crown Removal	L <sub>C</sub>	Point of Curvature	PC
Future	Fut	Length of Spiral	L <sub>S</sub>	Point of Intersection	PI
G		Length of Superelevation Runoff	L <sub>S</sub>	Point of Reverse Curvature	PRC
Gas	G	Line	Ln	Point of Tangency	PT
Gas Meter	GM	Linear or Lineal	Lin	Point on Curve	POC
Gas Valve	GV	Linear Feet	Lin Ft	Point on Semi-Tangent	POST
Galvanize or galvanized	Galv	Location	Loc	Point on Spiral	POS
Gauge	Ga	M		Point on Tangent	POT
Government	Gov't	Manhole	MH	Polyethylene	PE
Grade	Gr	Material	Mtl		
Grade Separation	GS	Maximum	Max		
		Median	Med		

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ROADWAY STANDARD DRAWINGS

GENERAL ABBREVIATIONS

REV.  
9/04

DRAWING NO.  
C-01.30  
Sheet 2 of 3

1

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG C-01.32 TO C-01.30, SHEET 3 OF 3	RLF	9/04
2			
3			
4			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
P (cont)		S		T (cont)	
Polyvinyl Chloride	PVC	Salvage	Salv	Telephone	Tel
Portland Cement Concrete	PCC	Section	Sct	Temporary	Temp
Portland Cement Concrete Pavement	PCCP	Select Material	SM	Temporary Construction Easement	TCE
Pounds	Lbs	Sheet	Sh	Timber	Tbr
Pounds Per Square Inch	PSI	Shoulder	Shldr	Top of Curb	TC
Preliminary	Prelim	Shrinkage	Shr	Topography	Topo
Prestress, Prestressed or Prestressing	PS	Sidewalk	S/W	Township	T
Project	Prj	Sight Distance, Stopping	SD <sub>s</sub>	Traffic Interchange	TI
Property Line	P/L	Single	Sgl	Transition	Trns
Proposed	Prop	Skew	Sk	Turning Point	TP
Protection	Prt	South	S	Turnout	TO
Provision or Provide	Prv	Southbound	SB	Typical	Typ
Q		Special	Spcl	U	
Quadrant	Quad	Specification	Spec	Underground	Ugnd
Quantity or Quantities	Quan	Spiral Rate of Change	a	Underpass	UP
Quantity of Drainage Runoff	Q	Spiral To Curve	SC	V	
R		Spiral To Tangent	ST	Variable	Var
Radius	R	Square	Sq	Vertical	Vert
Railroad	RR	Square Feet	Sq Ft	Vertical Curve	VC
Range	R	Square Yard	Sq Yd	Vertical Elliptical Reinforced	VERCP
Reconstruct	Recst	Standard	Std	Concrete Pipe	
Reference	Ref	State Route	SR	Vertical Point of Intersection	VPI
Reinforced or Reinforcing	Reinf	Station	Sta	Viaduct	Via
Reinforced Concrete	RC	Street	St	Vitrified Clay Pipe	VCP
Reinforced Concrete Pipe	RCP	Structure or Structural	Str	Volume	Vol
Reinforcing Bar	Rebar	Subdivision	Subdiv	W	
Relocate, Relocation or Relocated	Reloc	Subgrade	SG	Water	W
Remove	Rem	Subgrade Seal	SS	Water Meter	WM
Required	Reqd	Superelevation	e or Super	Water Valve	WV
Reservation	Resv	Surface	Surf	Welded Wire Fabric	WWF
Residence	Res	Survey	Sur	West	W
Retain or Retaining	Ret	Swell	Sw	Westbound	WB
Revised or Revision	Rev	Symmetrical	Sym	Western Wood Products Association	WWPA
Right	Rt	T		Wide or Width	W
Right-of-Way	R/W	Tangent	Tan	Wood	Wd
Road	Rd	Tangent Length	T	Y	
Roadway	Rdwy	Tangent to Spiral	TS	Yard	Yd
Route	Rte	Telegraph	Tlg		
Rubber Gasket Reinforced Concrete Pipe	RGRCP				

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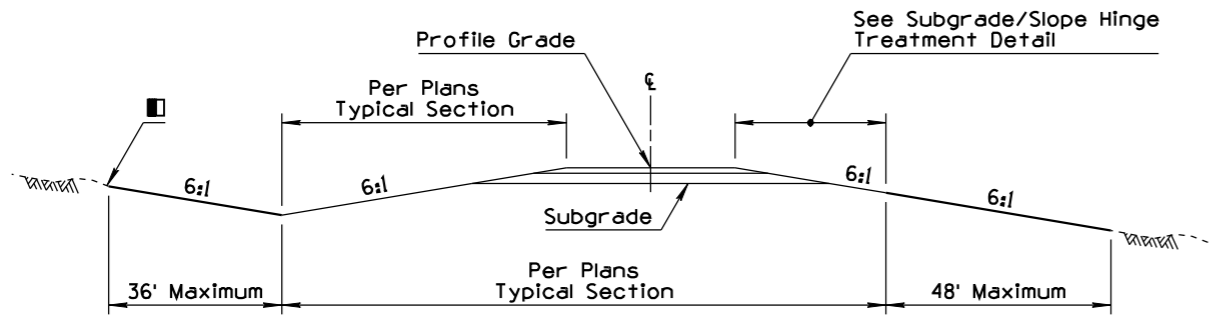
STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
ROADWAY STANDARD DRAWINGS

GENERAL ABBREVIATIONS

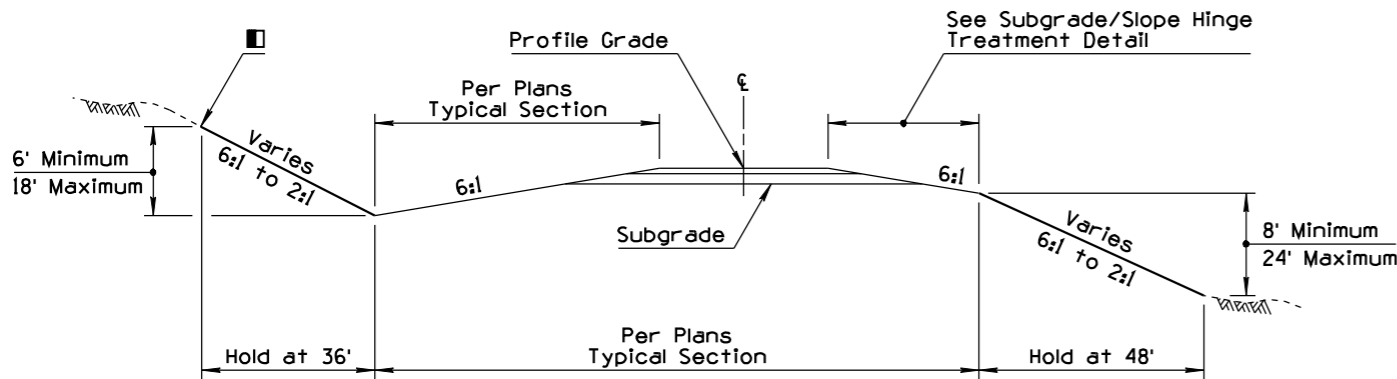
REV.  
9/04

DRAWING NO.  
C-01.30  
Sheet 3 of 3

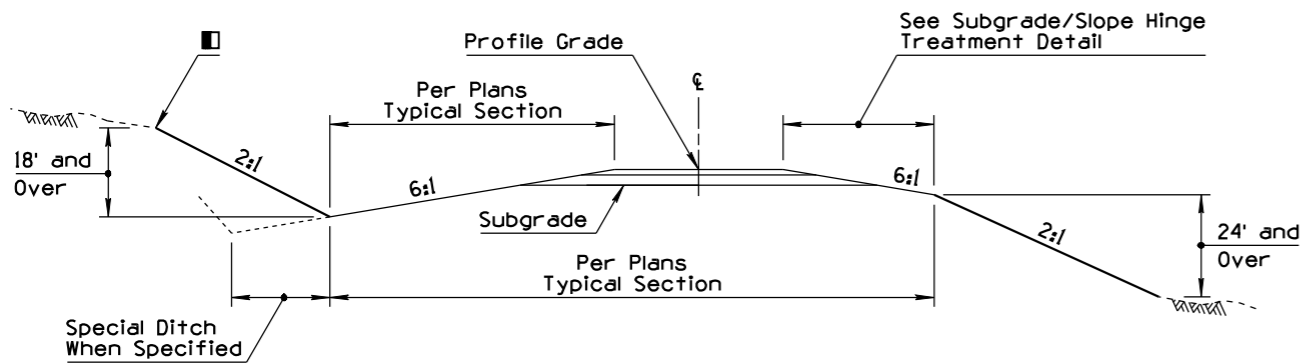
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TITLE	RLF	4/06
2			
3			
4			



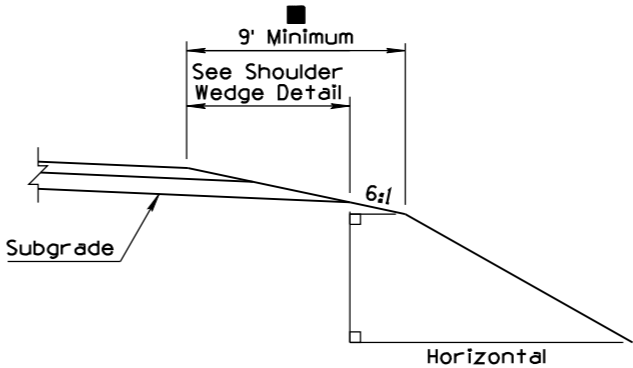
MINIMUM SLOPES



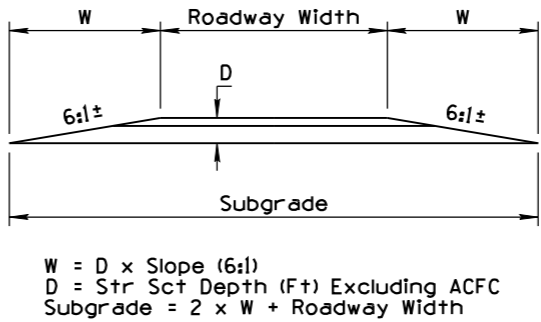
INTERMEDIATE SLOPES



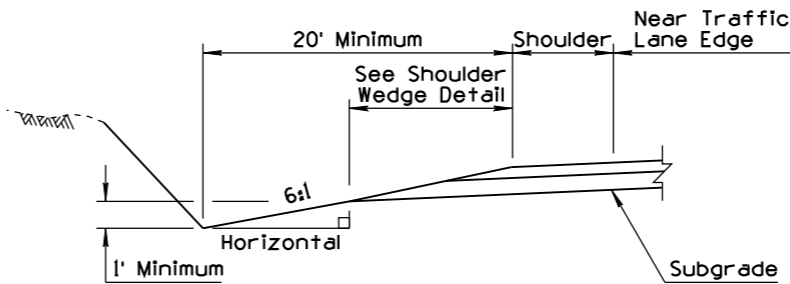
MAXIMUM SLOPES



SUBGRADE/SLOPE HINGE TREATMENT DETAIL



SHOULDER WEDGE DETAIL



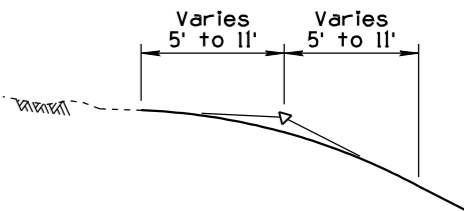
MINIMUM DITCH CONDITIONS DETAIL

GENERAL NOTES

1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.
4. For slope controls within interchange areas, see project plans.
5. When median slopes intersect, see project plans for controls.
6. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

- The 9' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions where guardrail is not utilized.

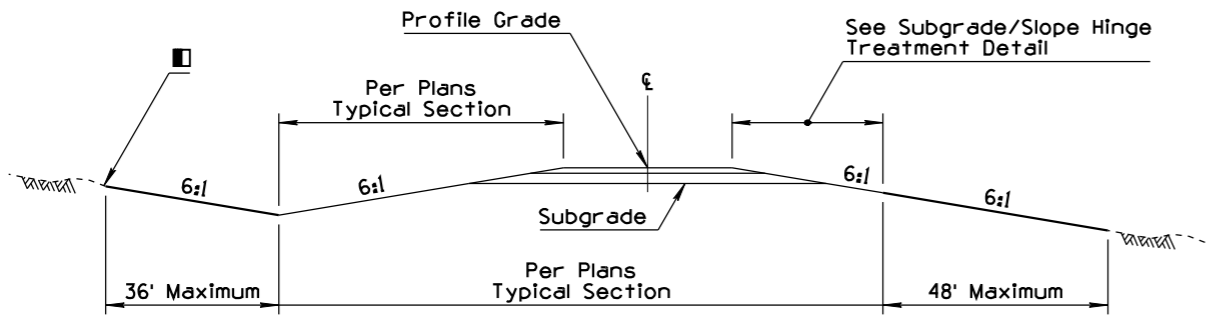


SLOPE ROUNDING DETAIL

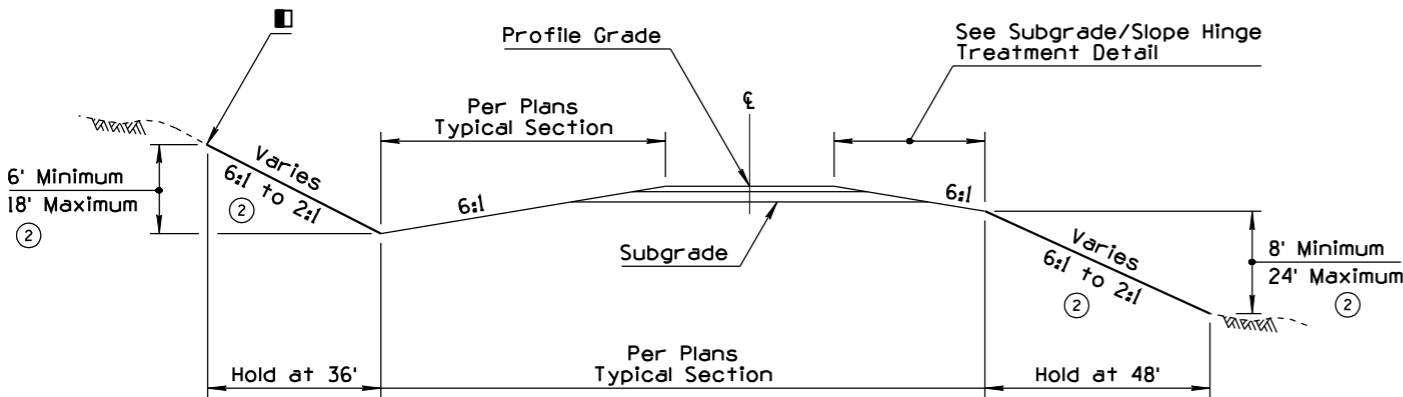
- Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.
- For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

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APPROVED FOR DISTRIBUTION <i>John Smith</i>	SLOPES RURAL DIVIDED HIGHWAYS ①	DRAWING NO. C-02.10

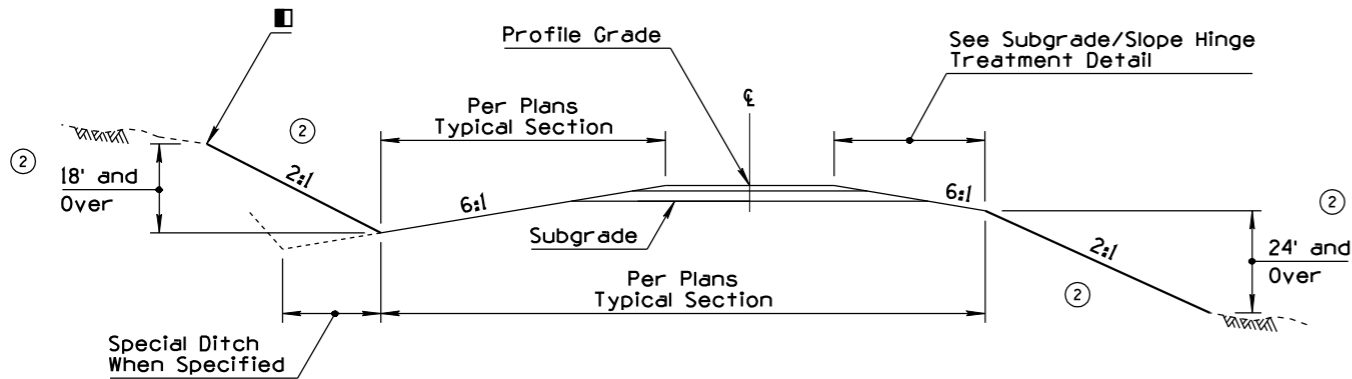
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	4/06
2	MODIFIED SLOPE CRITERIA	RLF	4/06
3			
4			



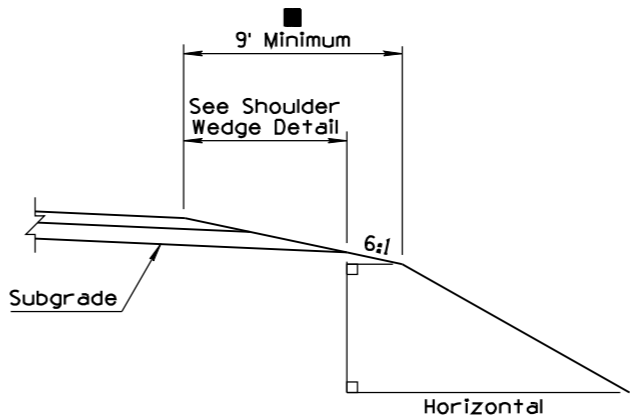
MINIMUM SLOPES



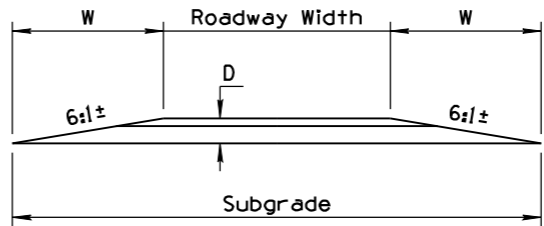
INTERMEDIATE SLOPES



MAXIMUM SLOPES

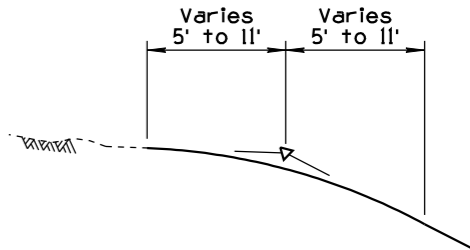


SUBGRADE/SLOPE HINGE  
TREATMENT DETAIL

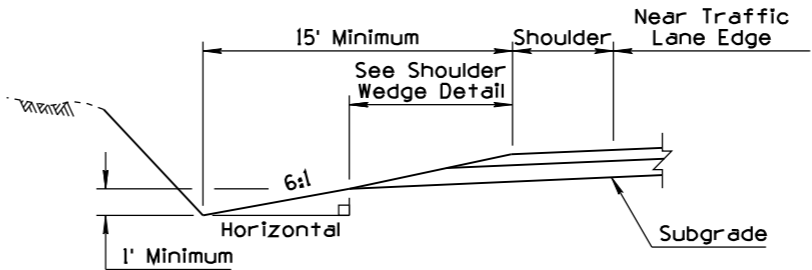


$W = D \times \text{Slope (6:1)}$   
 $D = \text{Str Sct Depth (Ft) Excluding ACFC}$   
 $\text{Subgrade} = 2 \times W + \text{Roadway Width}$

SHOULDER WEDGE DETAIL



SLOPE ROUNDING DETAIL



MINIMUM DITCH CONDITIONS DETAIL

1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
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4. When median slopes intersect, see project plans for controls.
5. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

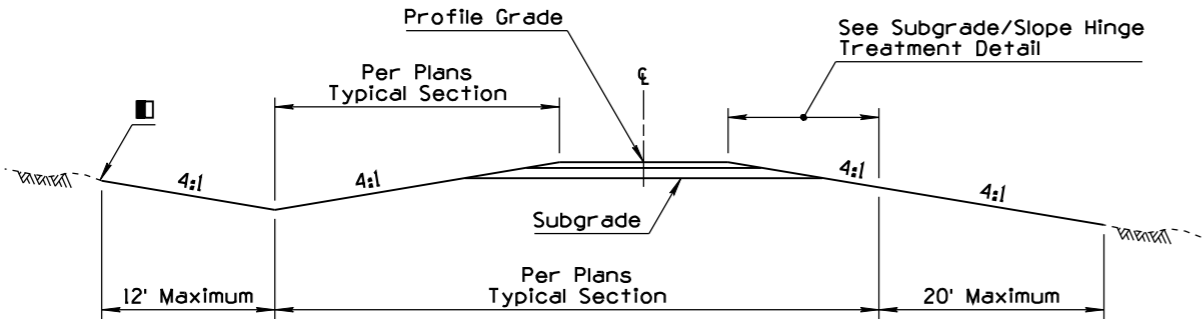
- The 9' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions where guardrail is not utilized.

- Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

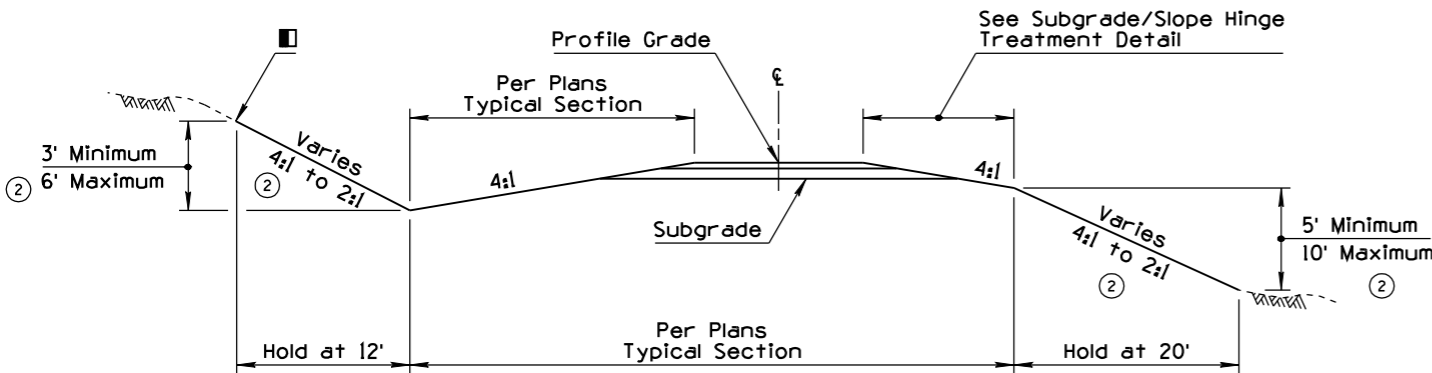
For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SLOPES RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS	DRAWING NO. C-02.20

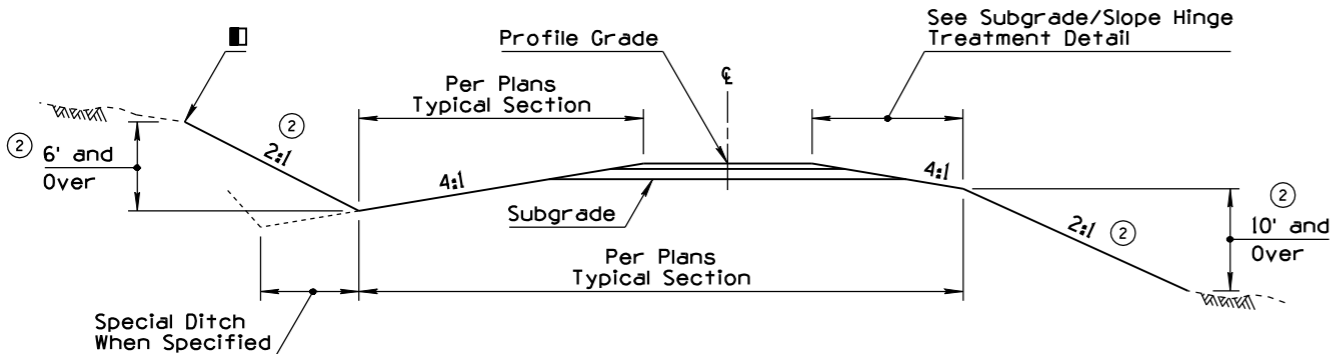
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TITLE	RLF	4/06
2	MODIFIED SLOPE CRITERIA	RLF	4/06
3	ADDED USAGE NOTE	RLF	4/06
4			



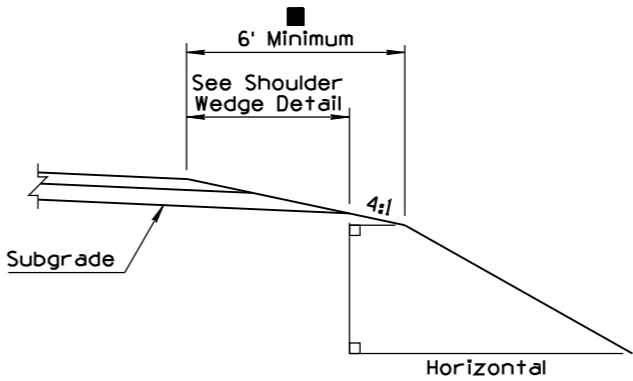
MINIMUM SLOPES



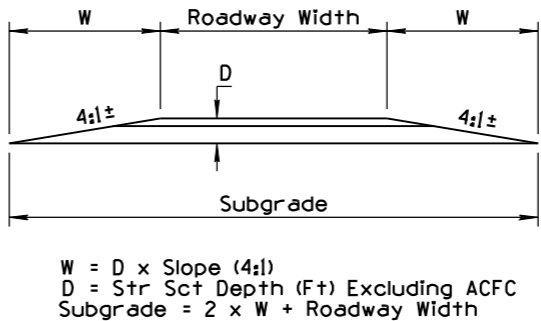
INTERMEDIATE SLOPES



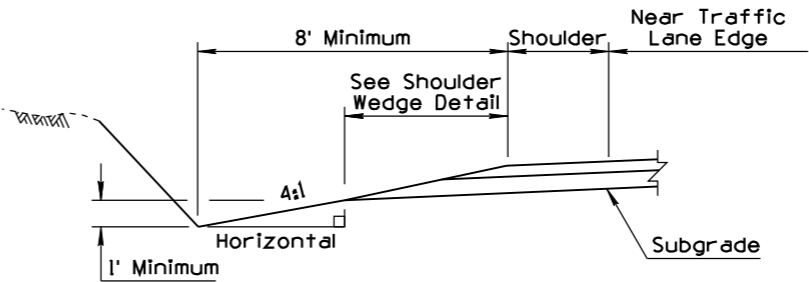
MAXIMUM SLOPES



SUBGRADE/SLOPE HINGE TREATMENT DETAIL



SHOULDER WEDGE DETAIL



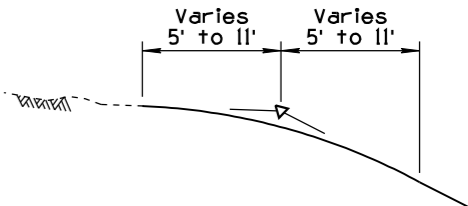
MINIMUM DITCH CONDITIONS DETAIL

GENERAL NOTES

1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.

NOTE TO DESIGNERS

- ③ USE OF THIS STANDARD IS LIMITED. SEE ROADWAY DESIGN GUIDELINES, SECTION 306.2.
- The 6' minimum is required when guardrail is utilized on the project. Treatment shall be uniform throughout the project length. The 6' requirement may be waived under special conditions where guardrail is not utilized.



SLOPE ROUNDING DETAIL

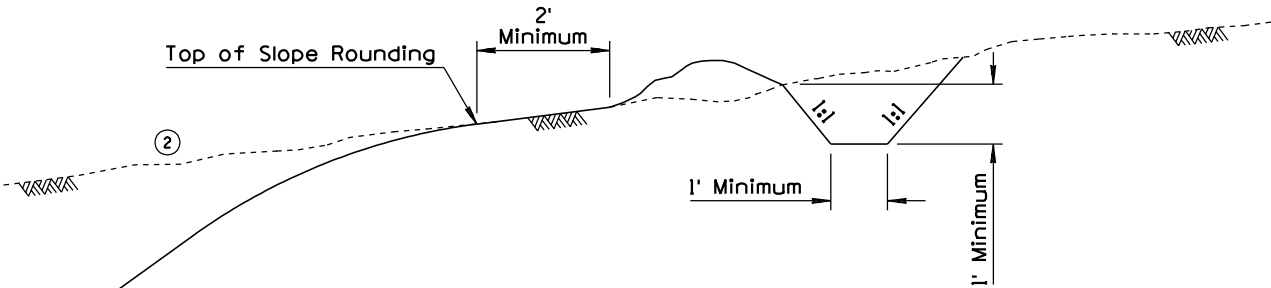
- Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.
- For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SLOPES MISCELLANEOUS ROADWAYS ①	DRAWING NO. C-02.30

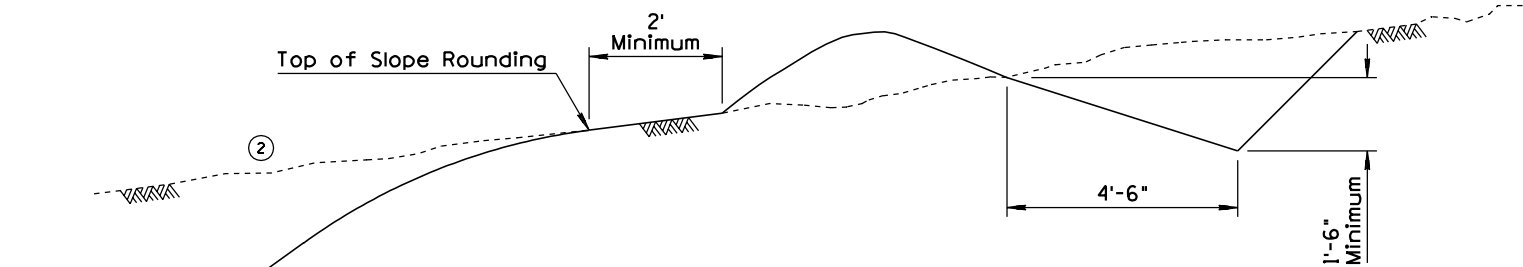
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SLOPE DESIGNATIONS	RLF	9/04
2	REVISED EXISTING GROUND-LINE SYMBOLLOGY	RLF	9/04
3			
4			

GENERAL NOTES

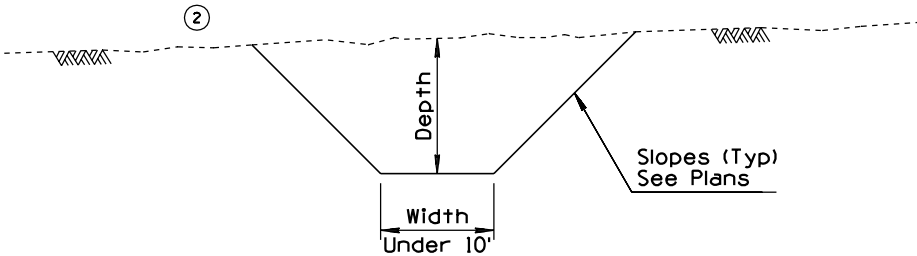
1. Dimensions of ditches and channels shall be shown on the plans as bottom width, depth and length.
2. Ditches and channels shall be constructed with a minimum grade to prevent erosion. Ditch outlet treatment shall be as provided on plans.



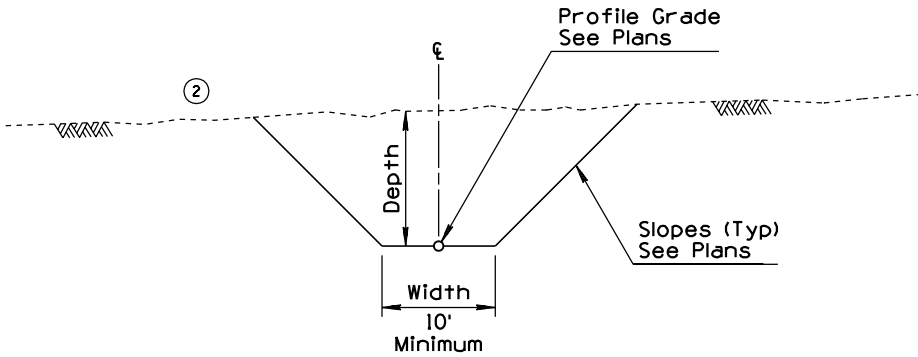
CROWN DITCH



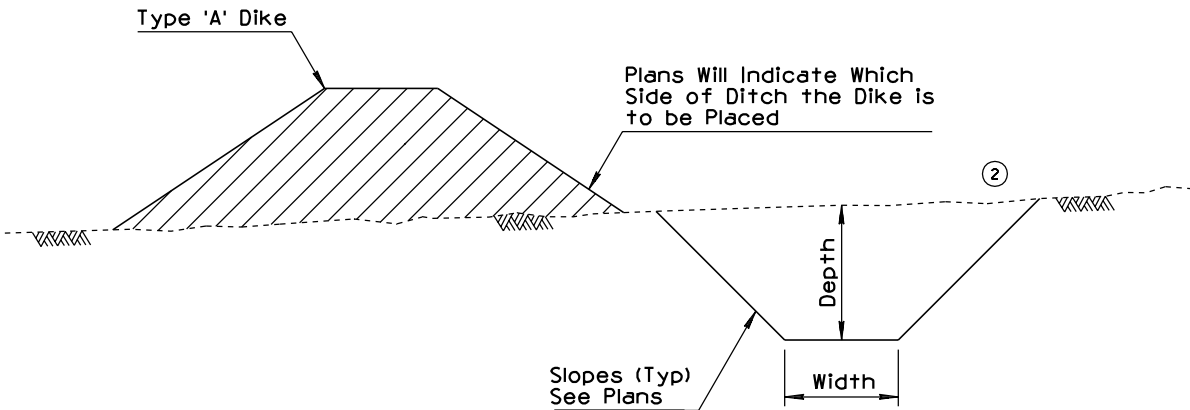
GRADER DITCH



DITCH



CHANNEL

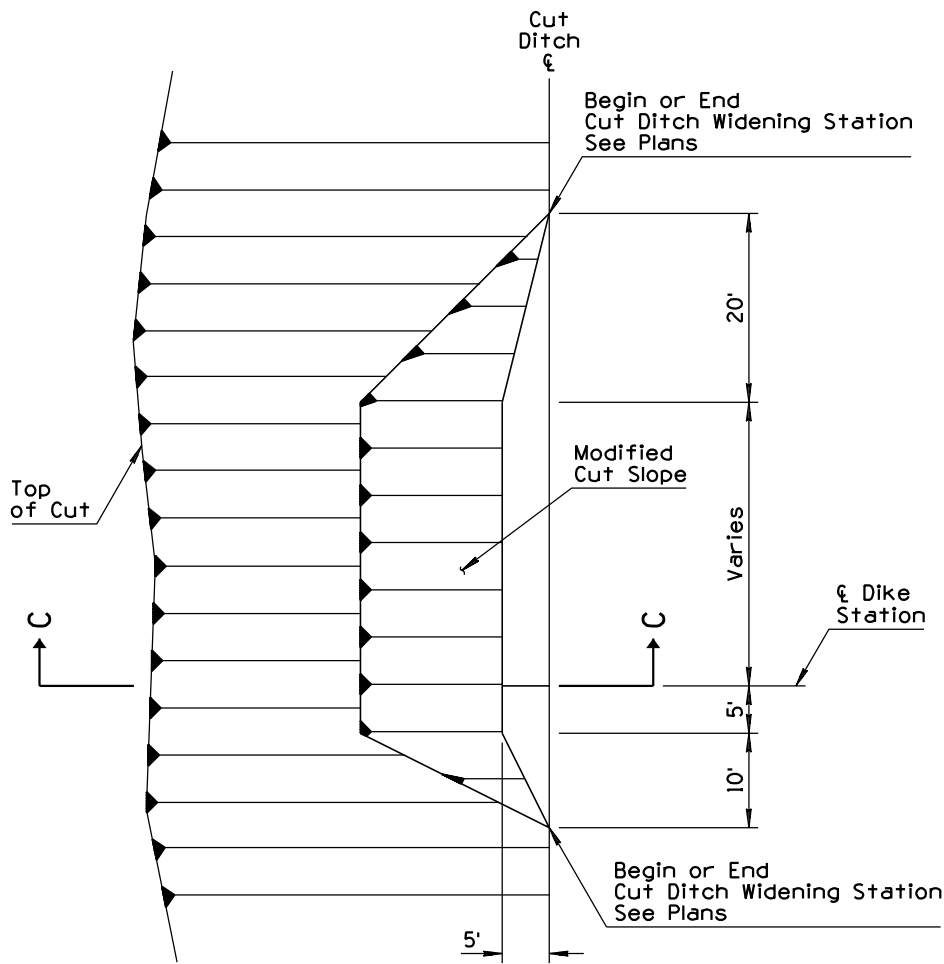
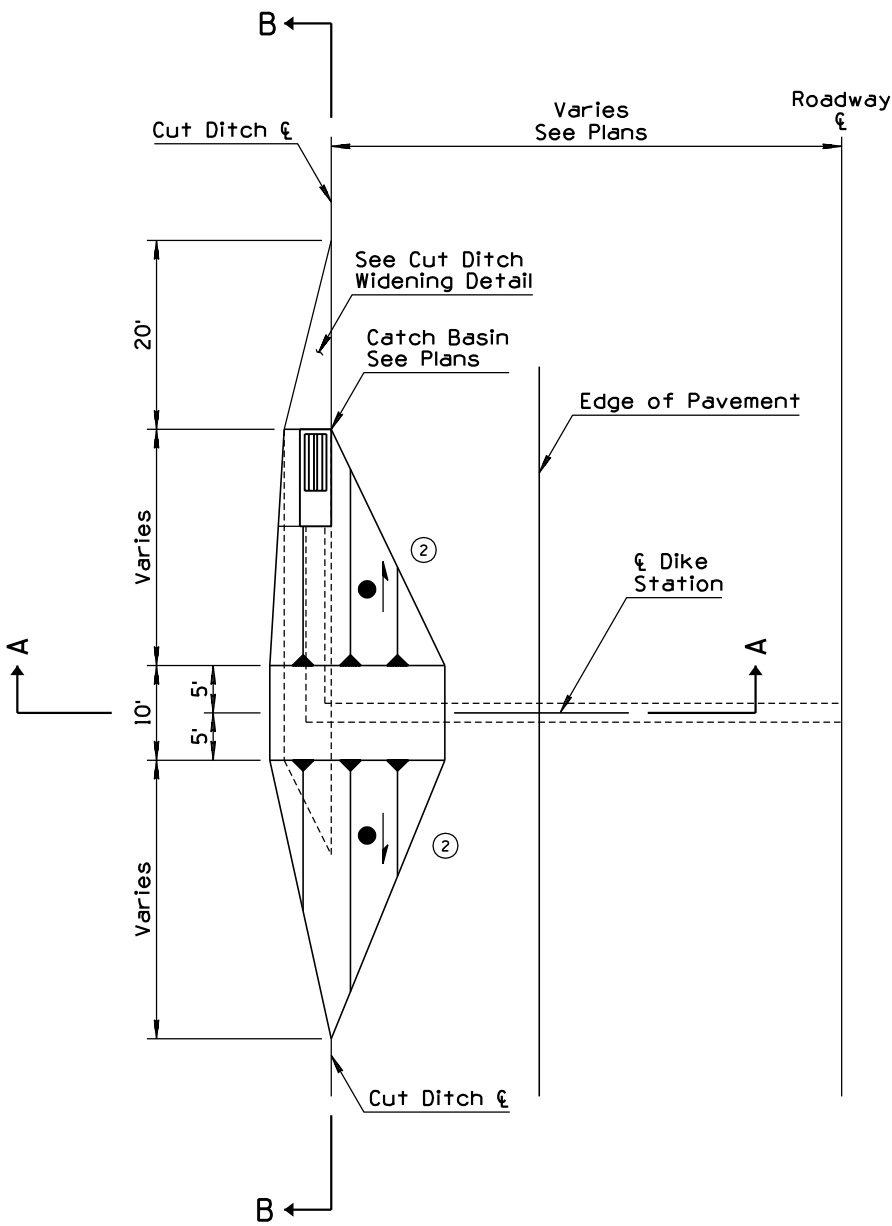


DITCH AND DIKE

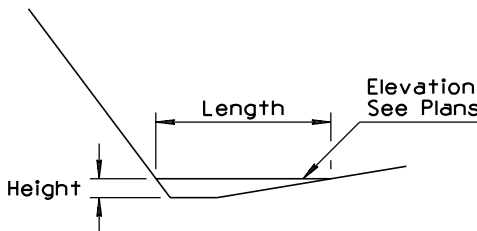
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS DITCHES AND CHANNELS	DRAWING NO. C-03.10 Sheet 1 of 5



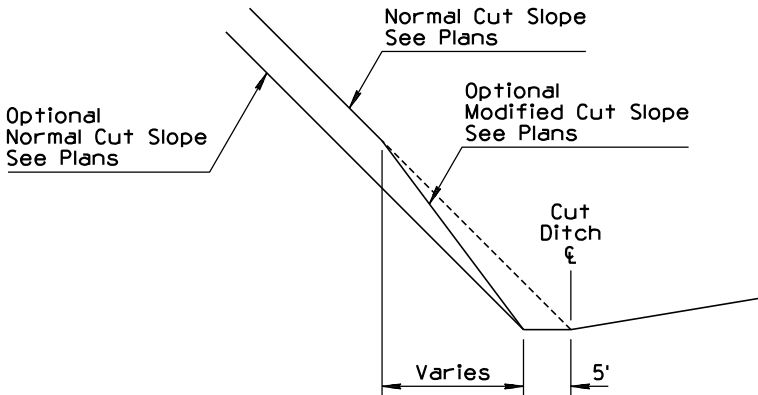
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED NEW GENERAL NOTE	RLF	9/04
2	REVISED SLOPE DESIGNATIONS	RLF	9/04
3			
4			



CUT DITCH WIDENING DETAIL



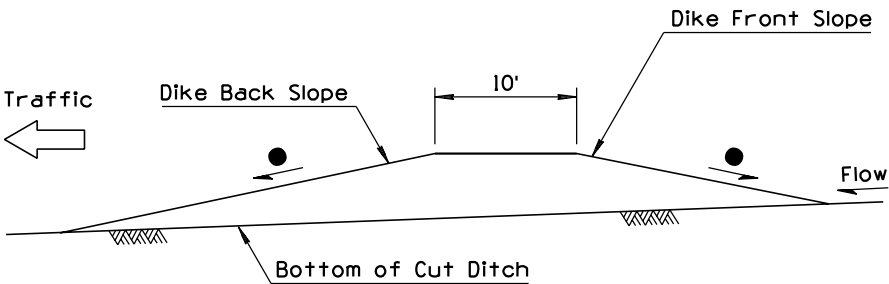
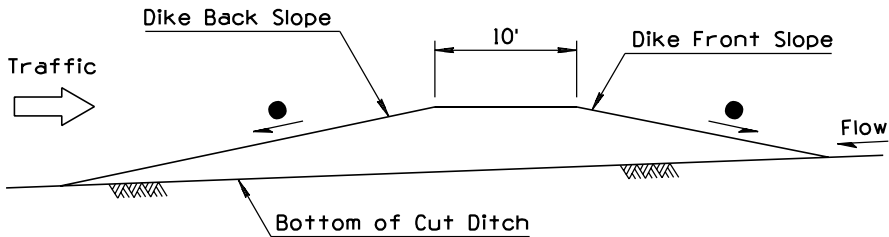
SECTION A-A



SECTION C-C

GENERAL NOTES

1. Dimensions for ditch dikes shall be shown on the plans as dike stationing, height, length, dike back slope and top of dike elevation.
2. Dimensions for cut ditch widening shall be shown on the plans as beginning and ending stations.
- ① 3. All slopes are given relative to the grade of the cut ditch at the toe intersection.
- ② 10:1 Desirable Slope



②

SECTION B-B

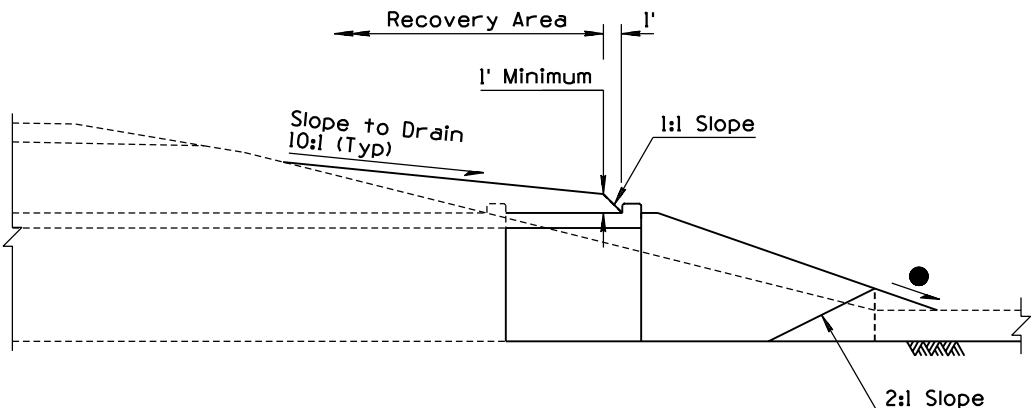
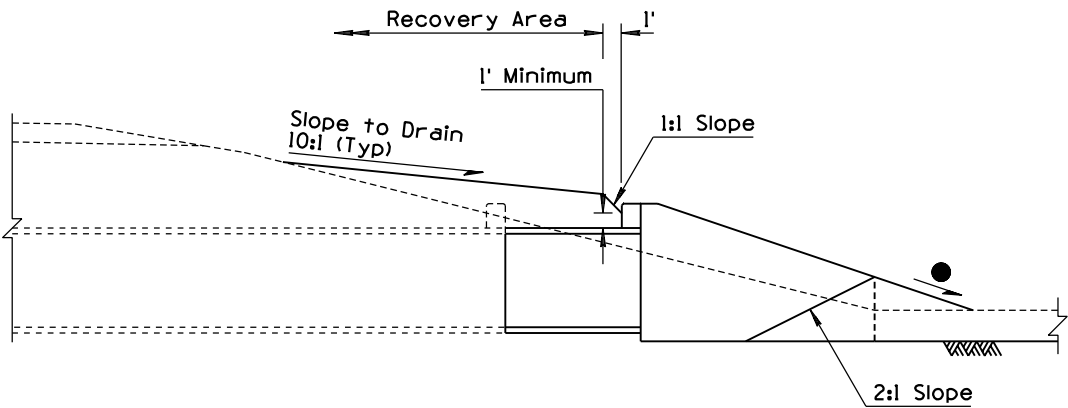
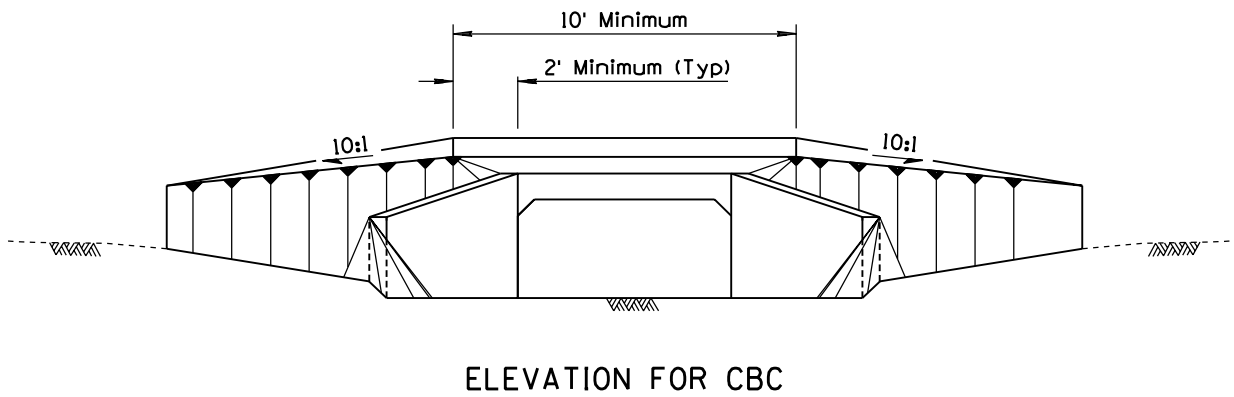
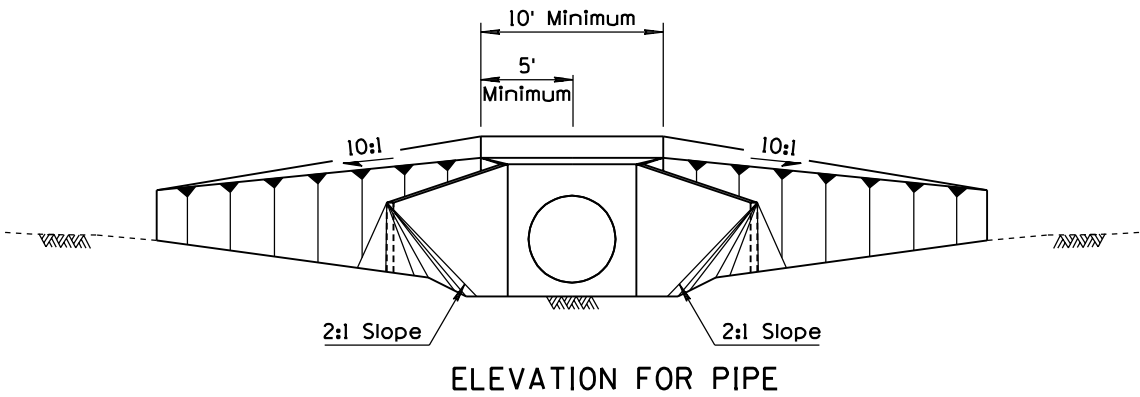
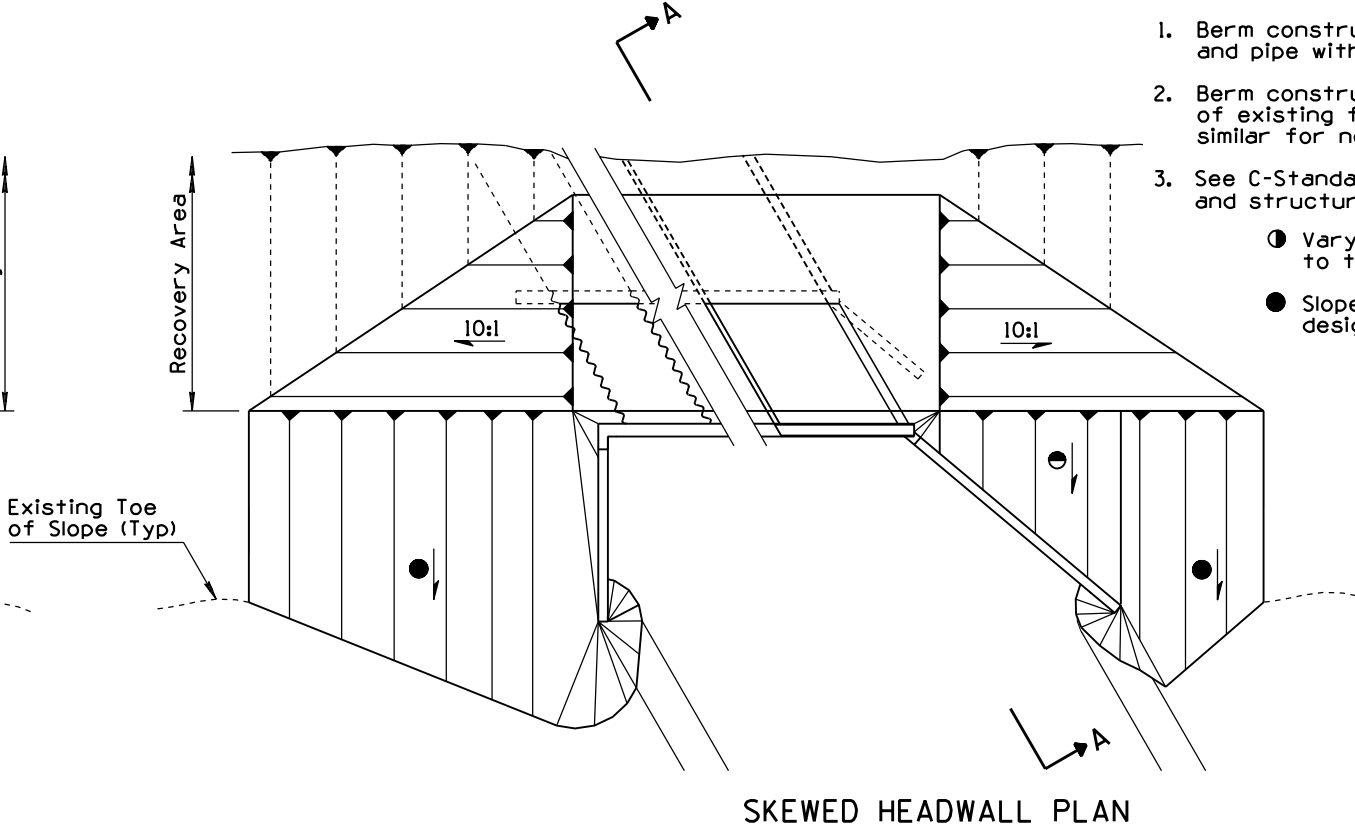
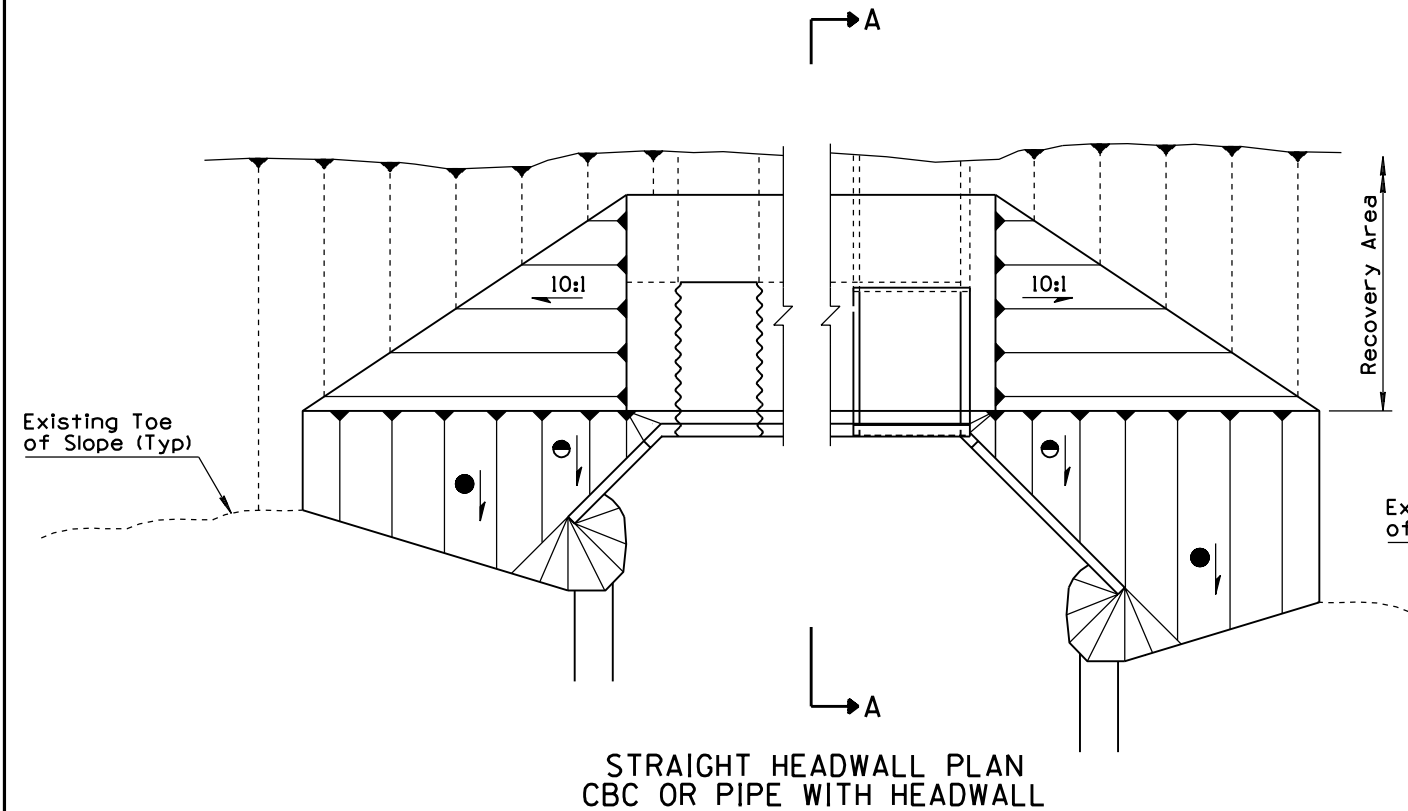
APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS DITCH DIKE	DRAWING NO. C-03.10 Sheet 3 of 5



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

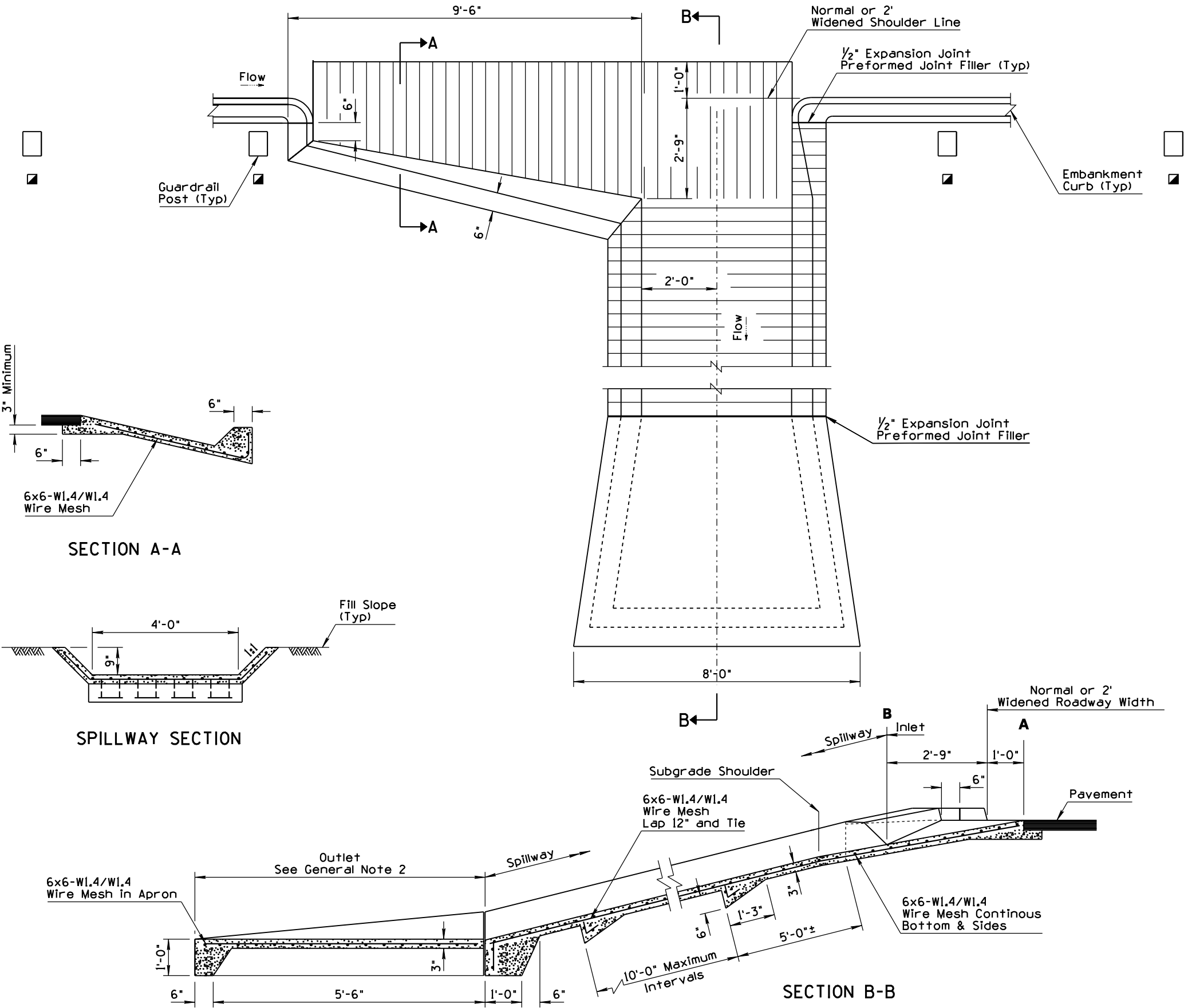
GENERAL NOTES

- Berm construction similar for box culvert and pipe with headwall.
- Berm construction shown is for extension of existing facilities. Berm construction similar for new facilities.
- See C-Standards and B-Standards for pipe and structure backfill limits.
  - ① Vary slope. Slope shall match to top of wing walls.
  - Slope shall match wing walls design slope (2:1, 4:1, or 6:1)



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DITCHES, CHANNELS, DIKES AND BERMS HEADWALL BERMS	DRAWING NO. ① C-03.10 Sheet 5 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	7/05
2			
3			
4			



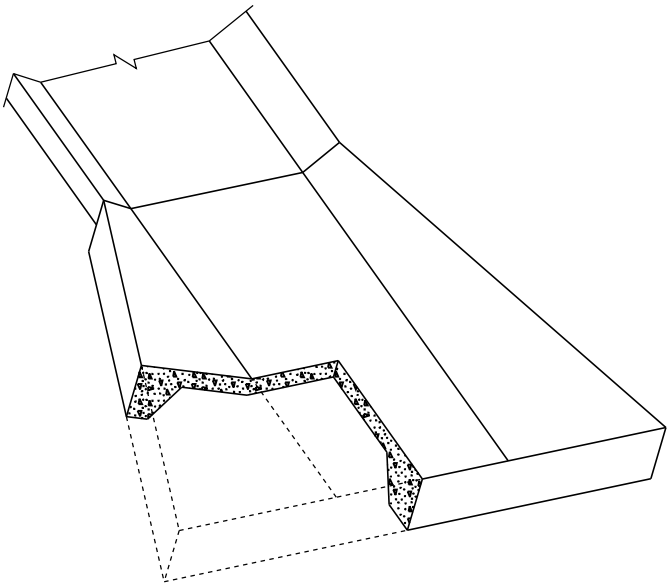
GENERAL NOTES

1. Location may be adjusted to accomodate guardrail post layout.
2. All concrete shall be Class B. Embankment curb concrete shall be in accordance with the Std Specs.
3. Where rock is encountered the outlet may be omitted, as approved by the Engineer.
4. When outlet is used, the wire mesh shall extend through the joint into the outlet in lieu of bending into the key.
5. Spillway invert slope shall be uniformly downward from **A** to **B**. See Section B-B.
6. See Std Dwg C-04.30 for spillway length.
7. See Std Dwg C-10.06 for nested guardrail requirements.

72" Timber Post

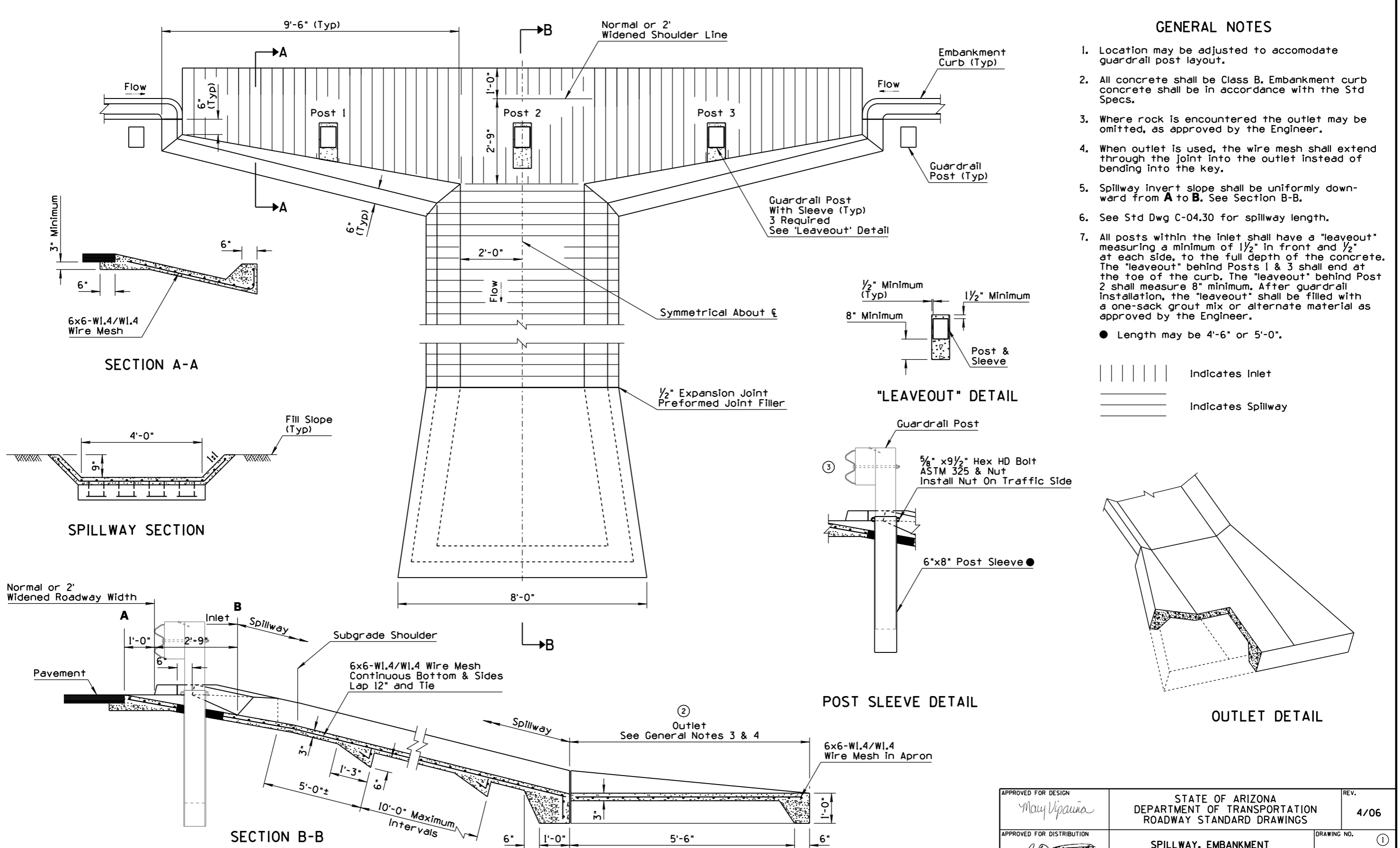
Indicates Inlet

Indicates Spillway



OUTLET DETAIL

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SPILLWAY, EMBANKMENT SINGLE INLET	DRAWING NO. <b>1</b> C-04.10 Sheet 1 of 2



**GENERAL NOTES**

may be adjusted to post layout.

te shall be Class B. E shall be in accordance

ck is encountered th as approved by the

et is used, the wire the joint into the ou into the key.

vert slope shall be u n **A** to **B**. See Section

wg C-04.30 for spillw

within the inlet shall a minimum of 1½" in ide, to the full depth out" behind Posts l of the curb. The "lea asure 8" minimum. Af n, the "leaveout" sh k grout mix or alter by the Engineer.

may be 4'-6" or 5'-0"

Indicates Inlet

Indicates Spillw

**OUTLET**

STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
ROADWAY STANDARD DRAWINGS

SPILLWAY, EMBANKMENT

- [illegible]

## GENERAL NOTES

Location may be adjusted to accommodate guardrail post layout.

All concrete shall be Class B. Embankment concrete shall be in accordance with the Specs.

Where rock is encountered the rock shall be omitted, as approved by the Engineer.


When outlet is used, the wire mesh shall be bent through the joint into the outlet and bent down into the key.

Spillway invert slope shall be uniform from **A** to **B**. See Section B-10.1.


See Std Dwg C-04.30 for spillway details.

All posts within the inlet shall have a "leaveout" measuring a minimum of 1½" in front of the curb at each side, to the full depth of the curb. The "leaveout" behind Posts 1 & 2 shall measure 2" minimum. After installation, the "leaveout" shall be filled with a one-sack grout mix or alternative material approved by the Engineer.

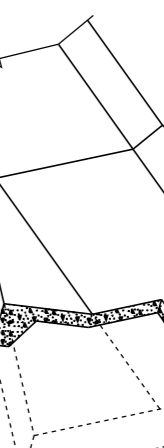
● Length may be 4'-6" or 5'-0".



Indicates Inlet

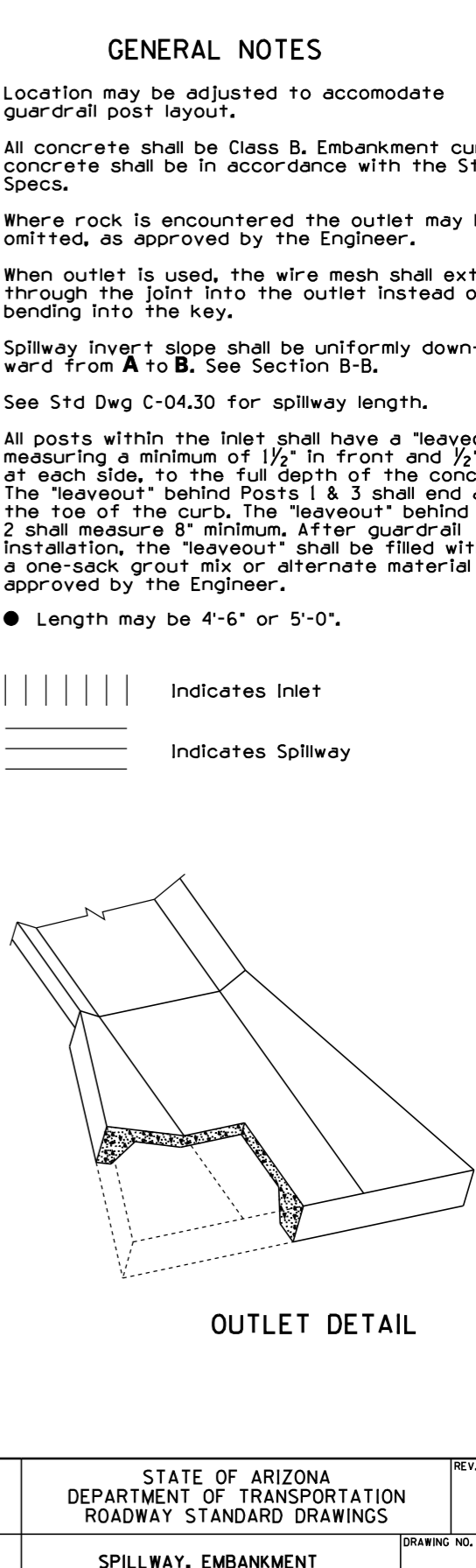


Indicates Spillway



## OUTLET DETAILS

	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS
SPILLWAY, EMBANKMENT	



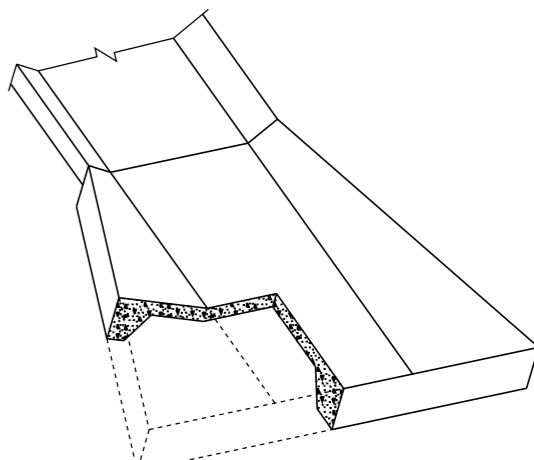
GENERAL NOTES

1. Location may be adjusted to accomodate guardrail post layout.
2. All concrete shall be Class B. Embankment curb concrete shall be in accordance with the Std Specs.
3. Where rock is encountered the outlet may be omitted, as approved by the Engineer.
4. When outlet is used, the wire mesh shall extend through the joint into the outlet instead of bending into the key.
5. Spillway invert slope shall be uniformly downward from **A** to **B**. See Section B-B.
6. See Std Dwg C-04.30 for spillway length.
7. All posts within the inlet shall have a "leaveout" measuring a minimum of 1½" in front and ½" at each side, to the full depth of the concrete. The "leaveout" behind Posts 1 & 3 shall end at the toe of the curb. The "leaveout" behind Post 2 shall measure 8" minimum. After guardrail installation, the "leaveout" shall be filled with a one-sack grout mix or alternate material as approved by the Engineer.

● Length may be 4'-6" or 5'-0".

Indicates Inlet

Indicates Spillway



OUTLET DETAIL

APPROVED FOR DESIGN <div style="font-family: cursive; font-size: 1.1em; margin-top: 5px;">May Vipawina</div>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. <div style="text-align: center; font-weight: bold; font-size: 1.1em; margin-top: 5px;">4/06</div>
APPROVED FOR DISTRIBUTION <div style="font-family: cursive; font-size: 1.1em; margin-top: 5px;">John [Signature]</div>	SPILLWAY, EMBANKMENT DOUBLE INLET	DRAWING NO. <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px; font-weight: bold;">1</span> <div style="text-align: center; font-weight: bold; font-size: 1.1em; margin-top: 5px;">C-04.10</div> <div style="text-align: center; font-size: 0.9em;">Sheet 2 of 2</div>



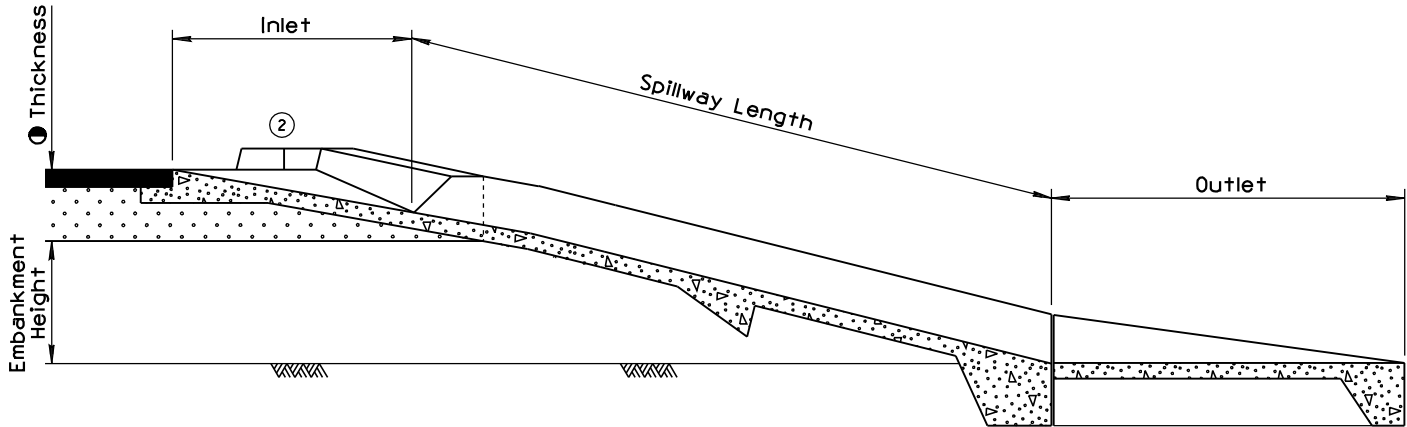


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2	MODIFIED INLET GRAPHICS	RLF	7/05
3			
4			

①

LENGTH OF SPILLWAY (F+)																																	
Thickness (In) ●	Embankment Height (F+)																																
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32					
12	32	37	43	49	50	50	51	52	52	52	52	53	53	54	54	54	55	55	56	56	57	57	58	58	59	59	60	60					
13	33	38	44	50	50	51	51	52	52	52	53	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61					
14	33	38	44	50	51	51	52	52	53	53	53	54	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61	61					
15	34	39	45	51	51	52	52	53	53	54	54	54	55	55	55	56	56	57	57	58	58	59	59	60	60	61	61	62					
16	34	39	45	51	52	52	53	53	54	54	54	55	55	56	56	56	57	57	58	58	59	59	60	60	61	61	62	62					
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19	36	41	47	53	53	54	54	55	55	56	56	56	57	57	58	58	58	59	59	60	60	61	61	62	62	63	63	64					
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22	37	42	48	54	55	55	56	56	57	57	57	58	58	59	59	59	60	60	61	61	62	62	63	63	64	64	65	65					
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36	44	49	55	61	62	62	63	63	64	64	64	65	65	66	66	66	67	67	68	68	69	69	70	70	71	71	72	72					

C-02.10 AND C-02.20 SLOPES



①

LENGTH OF SPILLWAY (F+)													
Thickness (In) ●	Embankment Height (F+)												
	5	6	7	8	9	10	11	12	13				
12	22	22	22	23	23	24	24	24	25				
13	22	22	23	23	23	24	24	25	25				
14	22	23	23	23	24	24	25	25	26				
15	23	23	23	24	24	25	25	25	26				
16	23	23	24	24	24	25	25	26	26				
17	23	24	24	24	25	25	26	26	27				
18	24	24	25	25	25	26	26	27	27				
19	24	24	25	25	25	26	26	27	27				
20	25	25	25	25	26	26	27	27	28				
21	25	25	25	26	26	27	27	28	28				
22	25	25	26	26	27	27	27	28	28				
23	26	26	26	26	27	27	28	28	29				
24	26	26	26	27	27	28	28	29	29				
25	26	27	27	27	28	28	28	29	29				
26	27	27	27	28	28	28	29	29	30				
27	27	27	28	28	28	29	29	30	30				
28	27	28	28	28	29	29	29	30	30				
29	28	28	28	29	29	29	30	30	31				
30	28	28	29	29	29	30	30	31	31				
31	28	29	29	29	30	30	31	31	32				
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33	29	29	30	30	30	31	31	32	32				
34	29	30	30	30	31	31	32	32	33				
35	30	30	30	31	31	31	32	32	33				
36	30	30	31	31	31	32	32	33	33				

C-02.30 SLOPES

GENERAL NOTES

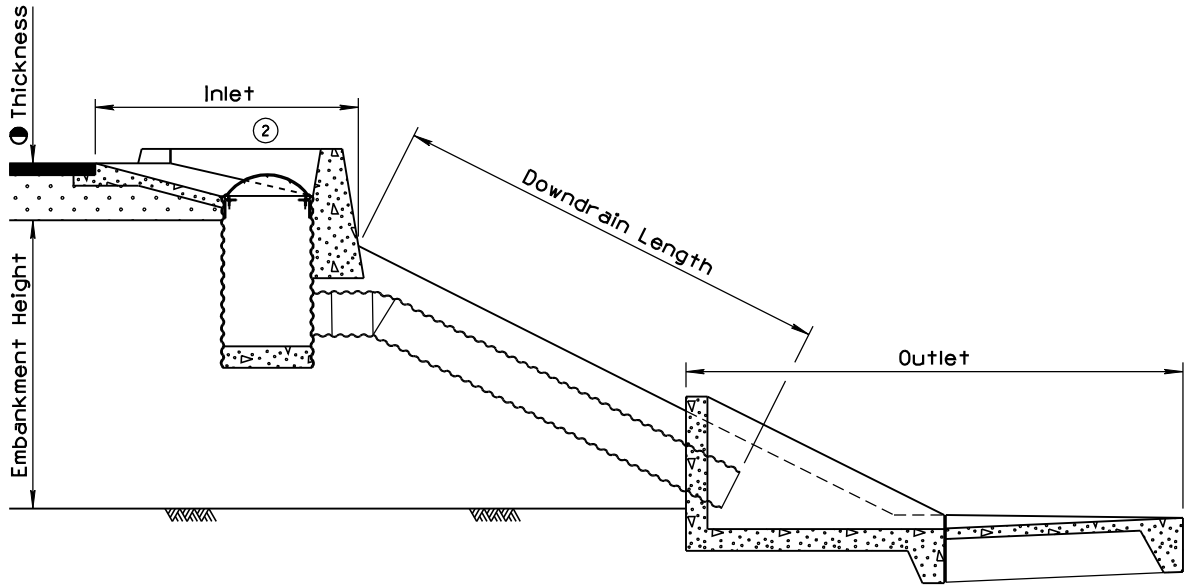
1. For C-02.10 slopes with embankment height over 24', use length for 24' embankment height from table + 2'.
2. For C-02.20 slopes with embankment height over 32', use length for 32' embankment height from table + 2'.
3. For C-02.30 slopes with embankment height over 13', use length for 13' embankment height from table + 2'.
4. For spillway details, see Std Dwg C-04.10.

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	SPILLWAY LENGTH TABLE	DRAWING NO. C-04.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2	MODIFIED INLET GRAPHICS	RLF	7/05
3			
4			

LENGTH OF DOWNDRAIN (Ft)																																	
Thickness (In) ●	Embankment Height (Ft)																																
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32							
12	32	38	46	46	46	46	48	48	48	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	58			
13	32	40	46	46	48	48	48	48	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	58				
14	34	40	46	46	48	48	50	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	58					
15	34	40	46	46	48	48	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	60	60					
16	34	40	48	48	48	48	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	60	60						
17	34	42	48	48	50	50	50	50	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	60	60	60	60						
18	36	42	48	48	50	50	52	52	52	52	52	54	54	54	54	56	56	56	56	58	58	58	58	60	60	60	60						
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C-02.10 AND C-02.20 SLOPES



LENGTH OF DOWNDRAIN (Ft)														
Thickness (In) ●	Embankment Height (Ft)													
	5	6	7	8	9	10	11	12	13					
12	14	16	16	16	20	20	20	20	20					
13	14	16	16	18	20	20	20	20	22					
14	14	16	18	18	20	20	20	20	22					
15	14	18	18	18	20	20	20	22	22					
16	16	18	18	18	20	20	22	22	22					
17	16	18	18	18	20	22	22	22	22					
18	16	18	18	18	22	22	22	22	22					
19	16	18	18	20	22	22	22	22	24					
20	16	18	20	20	22	22	22	24	24					
21	16	20	20	20	22	22	24	24	24					
22	18	20	20	20	22	22	24	24	24					
23	18	20	20	20	22	24	24	24	24					
24	18	20	20	20	24	24	24	24	26					
25	18	20	20	22	24	24	24	24	26					
26	18	20	22	22	24	24	24	26	26					
27	18	22	22	22	24	24	26	26	26					
28	20	22	22	22	24	26	26	26	26					
29	20	22	22	22	26	26	26	26	26					
30	20	22	22	24	26	26	26	26	28					
31	20	22	24	24	26	26	26	28	28					
32	20	24	24	24	26	26	26	28	28					
33	22	24	24	24	26	26	28	28	28					
34	22	24	24	24	26	28	28	28	28					
35	22	24	24	24	28	28	28	28	28					
36	22	24	24	26	28	28	28	28	30					

C-02.30 SLOPES

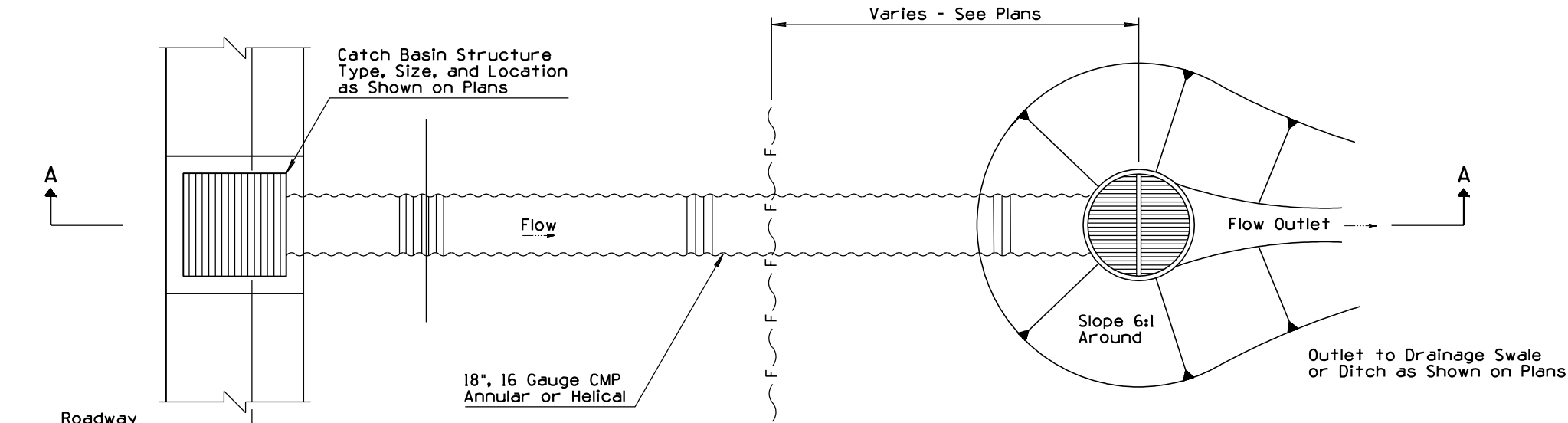
- GENERAL NOTES
1. For C-02.10 slopes with embankment height over 24', use length for 24' embankment height from table + 2'.
  2. For C-02.20 slopes with embankment height over 32', use length for 32' embankment height from table + 2'.
  3. For C-02.30 slopes with embankment height over 13', use length for 13' embankment height from table + 2'.
  4. For downdrain details, see Std Dwg C-04.20.

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	DOWNDRAIN LENGTH TABLE	DRAWING NO. C-04.40

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED PLAN & SECTION VIEW	RLF	9/04
2	ADDED NEW GENERAL NOTE	RLF	9/04
3			
4			

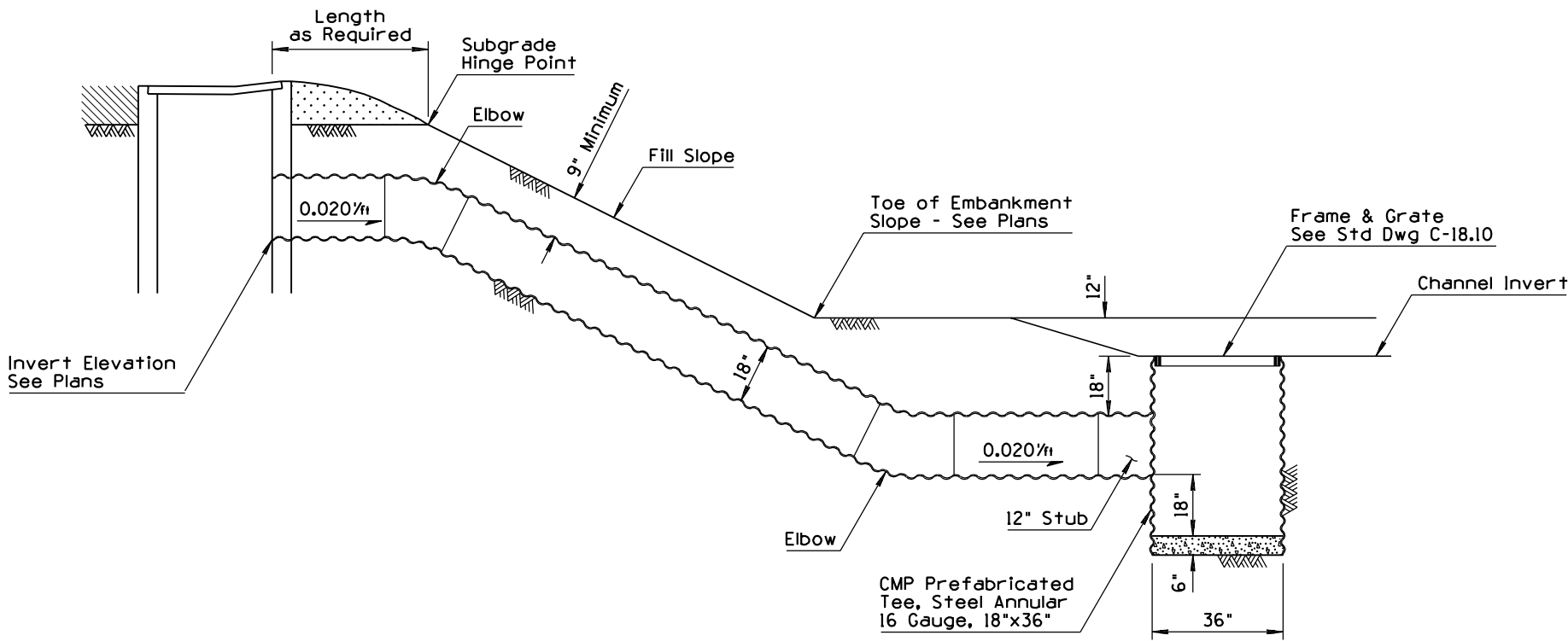
GENERAL NOTES

1. Stub shall have annular corrugation. Downdrain piping beyond stub may be either annular or helical.
2. Couplings shall be mechanical heat-shrinkable polyolatin sheet; one piece lap type neoprene sheet or slip seam; all 12" minimum width and 18 gauge minimum.
3. Maximum Q Allowable = 8 cfs  
Minimum V Allowable = 1 fps
- ② 4. Concrete shall be Class B.



PLAN

①



SECTION A-A

①

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DOWNDRAIN ENERGY DISSIPATOR	DRAWING NO. C-04.50

The image contains three separate cross-sectional diagrams of curb and gutter configurations, each with its own title and set of dimensions.

**CURB & GUTTER TYPE D, D-1, D-2 & D-3**

- Roadway Width:** 8 1/2"
- Pavement Width:** Indicated by a dimension line.
- Curb Dimensions:** 6" high, 2 1/2" wide at the top.
- Gutter Dimensions:** 1" R (radius), 4" R (radius), and a 1'-0" width at the base.
- Gutter Slope:** Indicated by a dashed line with a slope 'd'.
- Gutter Control Grade:** Shown on Plan when Shown on Plan.
- Minimum Depth:** 7"
- Batter:** 1/2" Batter
- Type D-3:** See General Note 2

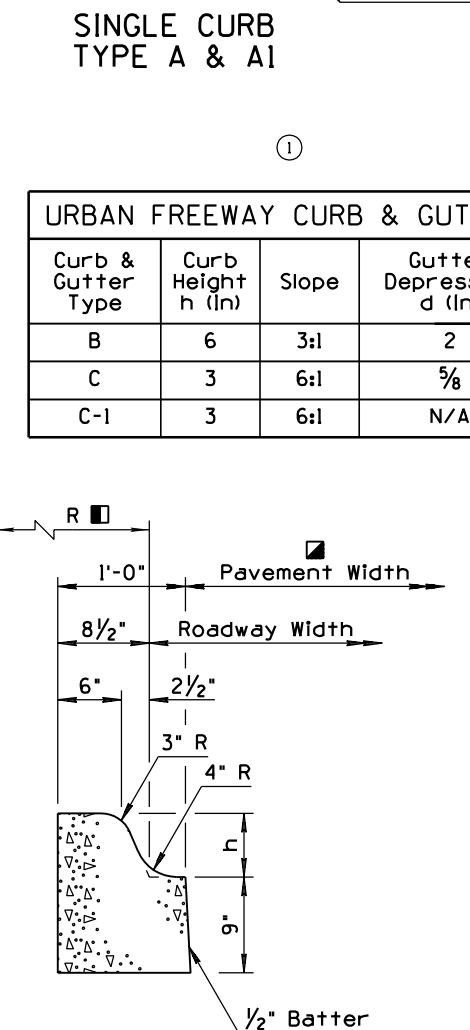
**CURB & GUTTER TYPE C-1**

- Roadway Width:** Indicated by a dimension line.
- Pavement Width:** Indicated by a dimension line.
- Curb Dimensions:** 1/2" R (radius), 1'-6" wide at the top.
- Gutter Dimensions:** 2'-6" wide at the top.
- Gutter Slope:** Indicated by a dashed line with a slope 'd'.
- Gutter Control Grade:** Shown on Plan when Shown on Plan.
- Horizontal Line:** Indicated by a dashed line.
- Edge of Pavement:** Indicated by a dashed line.
- Type C-1:** See General Note 2

**CURB & GUTTER TYPE B, C & C-1**

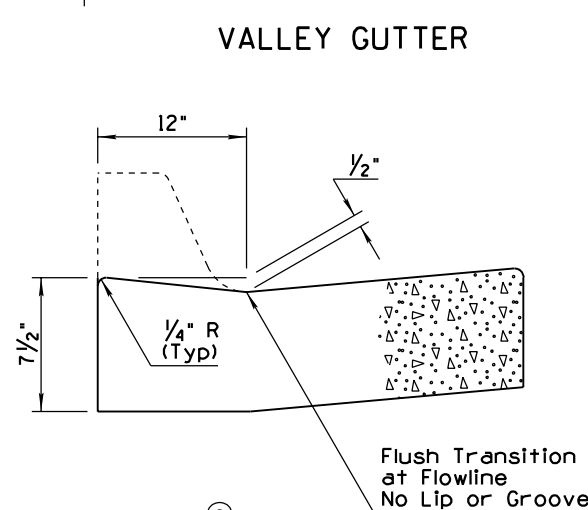
- Roadway Width:** 8 1/2"
- Pavement Width:** Indicated by a dimension line.
- Curb Dimensions:** 6" high, 2 1/2" wide at the top.
- Gutter Dimensions:** 3" R (radius), 4" R (radius), and a 1'-0" width at the base.
- Gutter Slope:** Indicated by a dashed line with a slope 'd'.
- Gutter Control Grade:** Shown on Plan when Shown on Plan.
- Minimum Depth:** 7"
- Batter:** 1/2" Batter

**CURB & GUTTER TYPE G**



The diagram illustrates the cross-section of a 'SINGLE CURB TYPE G'. Key dimensions and components are labeled as follows:

- Pavement Width:** Indicated by a horizontal arrow at the top, corresponding to a dimension of 1'-0" (1 foot 0 inches).
- Roadway Width:** Indicated by a horizontal arrow below the pavement width, corresponding to a dimension of 8 1/2" (8 and a half inches).
- Vertical Dimensions:**
  - 6" (6 inches) for the top section of the curb.
  - 2 1/2" (2 and a half inches) for the top section of the gutter.
  - 3" R (3 inch Radius) for the top fillet.
  - 4" R (4 inch Radius) for the bottom fillet.
  - C (Curb height) for the vertical height of the curb face.
  - 9" (9 inches) for the total height of the curb and gutter assembly.
- Materials and Features:**
  - A hatched area represents the concrete curb and gutter.
  - A stippled area represents the asphalt pavement.
  - A 1/2" (half inch) Batter is indicated at the base of the curb face.



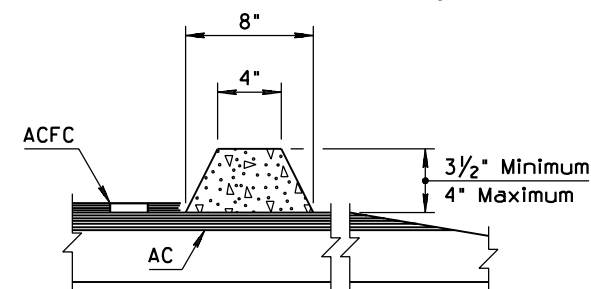
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV.  9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CURB & GUTTER CURB GUTTER	DRAWING NO.  C-05.10

SINGLE CURB AND CURB & GUTTER

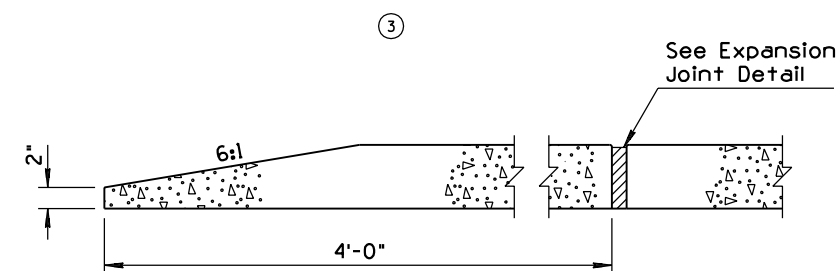
1. Single curb and curb & gutter may be constructed by the use of forms or the concrete may be extruded.
  2. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the gutter depression is not applicable.
  3. Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
  4. Expansion joints shall be located at tangent points in curb returns, at structures and at maximum 60' intervals. The  $\frac{1}{2}$ " joint filler shall extend the full depth of the concrete.
  5. Concrete shall be finished with a steel trowel followed by brushing with a fine brush along the length of the curb and gutter.
  6. All exposed edges and hand-tooled joints shall be finished with a tool having a  $\frac{1}{4}$ " radius, or as noted on the plans.
- See Plans
- See Plans (6 or 7 Inch typical)
- Curb Radius when shown on plans

EMBANKMENT CURB

1. No additional finishing will be required after extrusion or removal of the forms when the curb presents a neat appearance and the surface is uniform in texture and color.
2. The curb shall conform to the cross section as shown except that the horizontal dimensions shall not vary more than  $\frac{1}{2}$ " .

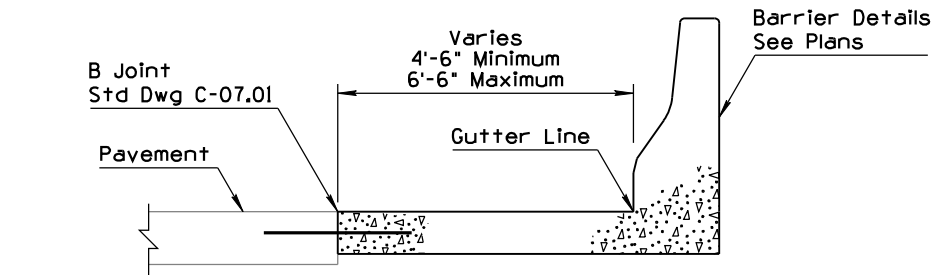


EMBANKMENT CURB

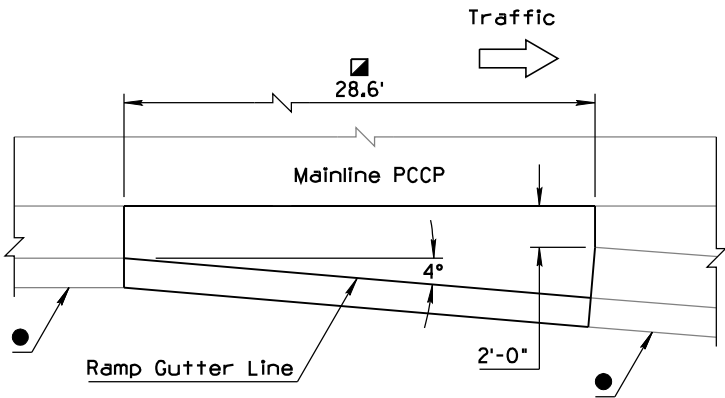


CURB TERMINAL SECTION

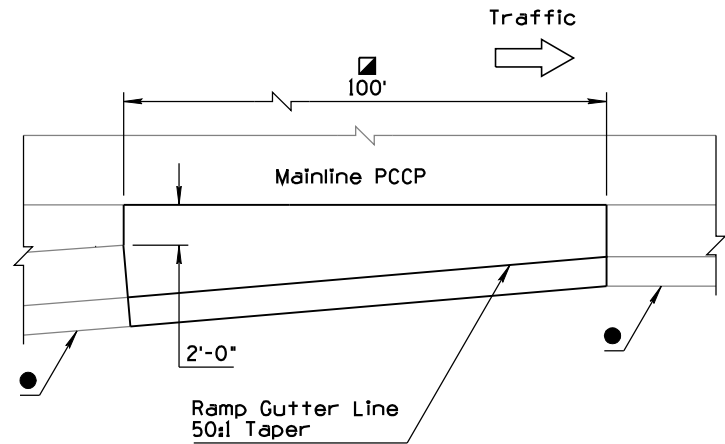
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2			
3			
4			



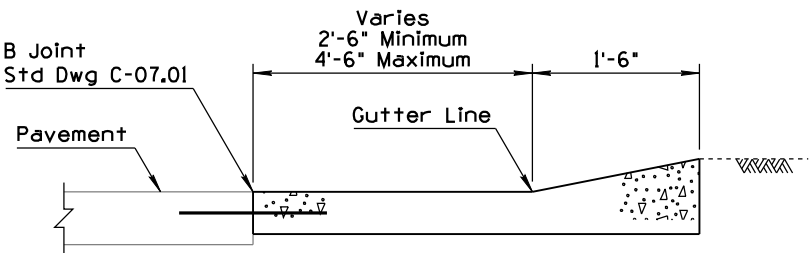
SECTION  
CONCRETE BARRIER APPLICATION



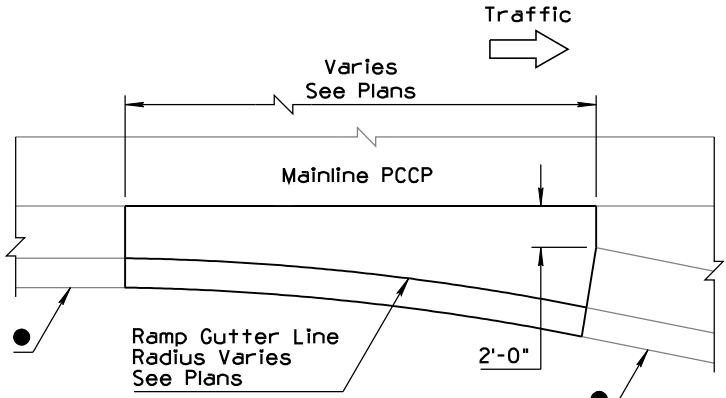
EXIT



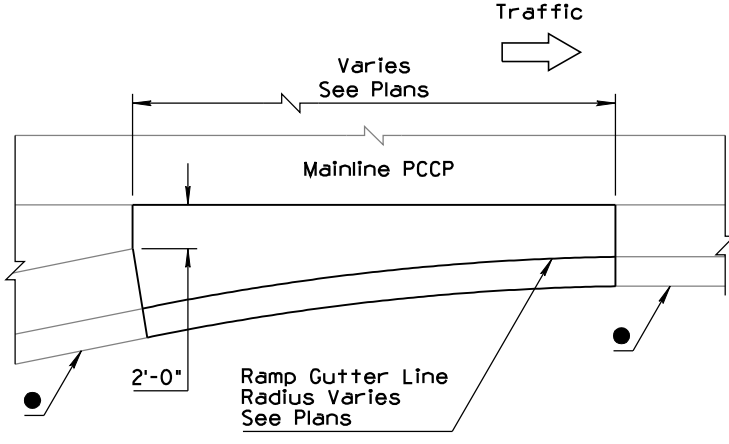
ENTRANCE  
TYPE 1 - TAPER TYPE GUTTER TRANSITIONS AT RAMPS  
PLAN VIEW



SECTION  
CURB & GUTTER APPLICATION



EXIT



ENTRANCE  
TYPE 1 - PARALLEL TYPE GUTTER TRANSITIONS AT RAMPS  
PLAN VIEW

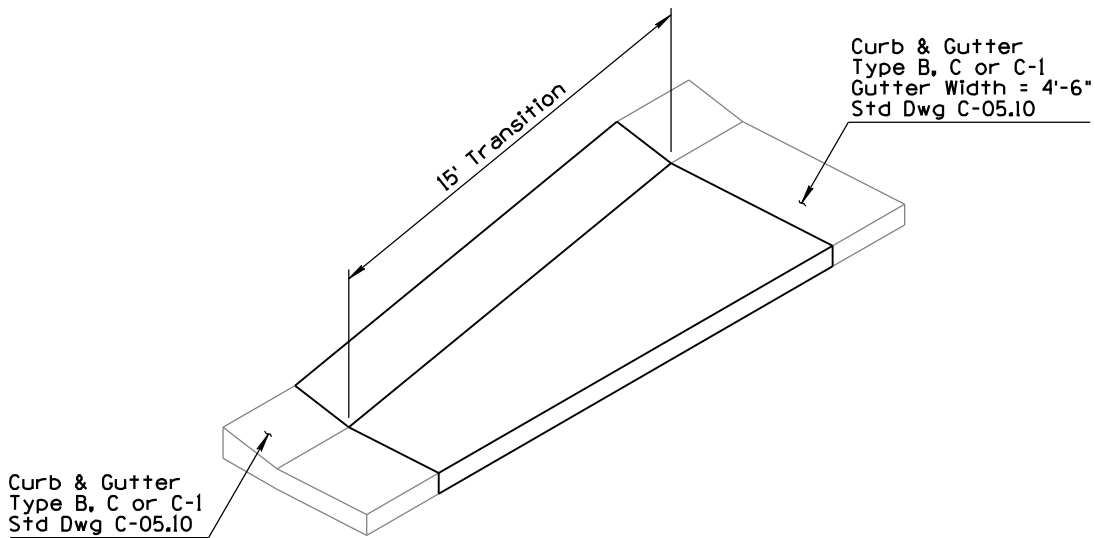
### GENERAL NOTES

1. All gutter flow lines shall be constructed to an accurate grade.
  2. See Slotted Drain Std Dwgs C-13.60 and C-15.91 for curb & gutter with slotted drain.
  3. See Std Dwg C-05.10 for additional general notes and dimensions.
  4. See Std Dwg C-07.04 for typical curb and gutter transition locations.
- ☒ Dimension May Vary Where Transition Occurs on Curves, See Plans
- Type I - Gutter Transition at Roadway Edge With Angle Point is Applicable With Concrete Half Barrier and Curb & Gutter Applications. Curb & Gutter Alternative is Shown.
- Curb & Gutter - Type B, C or C-1, Std Dwg C-05.10

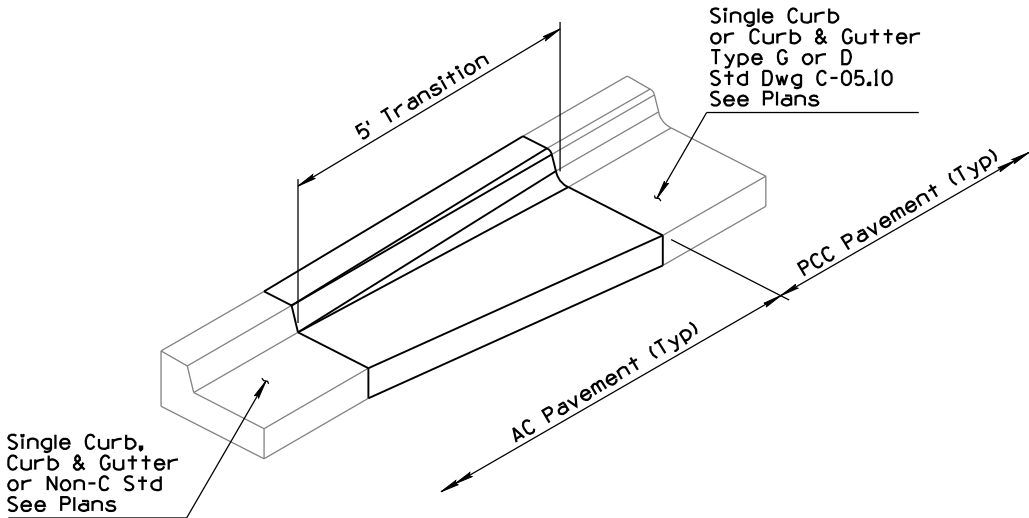
APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CURB & GUTTER TRANSITIONS	DRAWING NO. ① C-05.12 Sheet 1 of 3



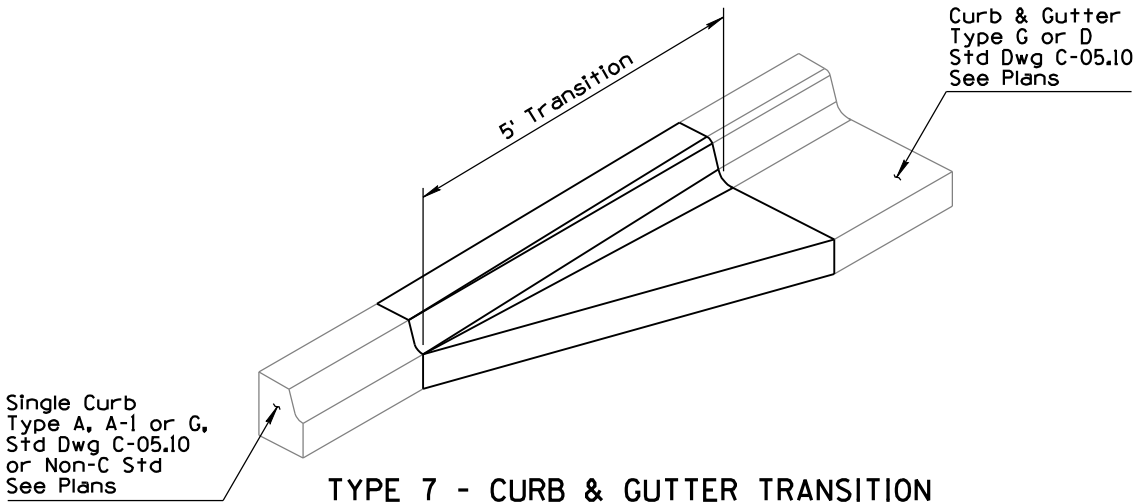
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2	REVISED DIMENSION	RLF	7/05
3			
4			



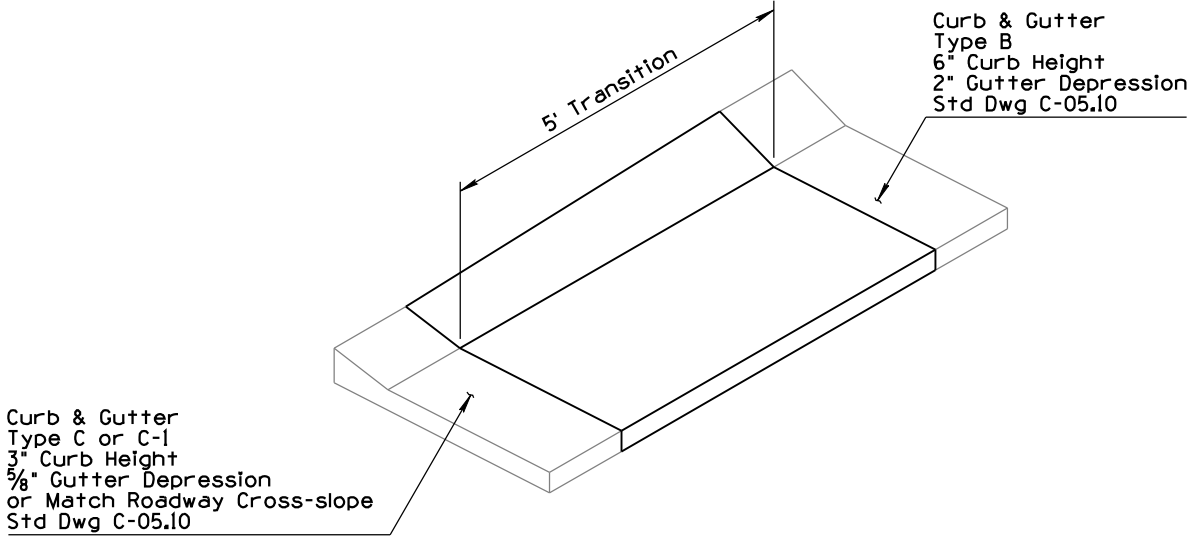
TYPE 5 - CURB & GUTTER TRANSITION



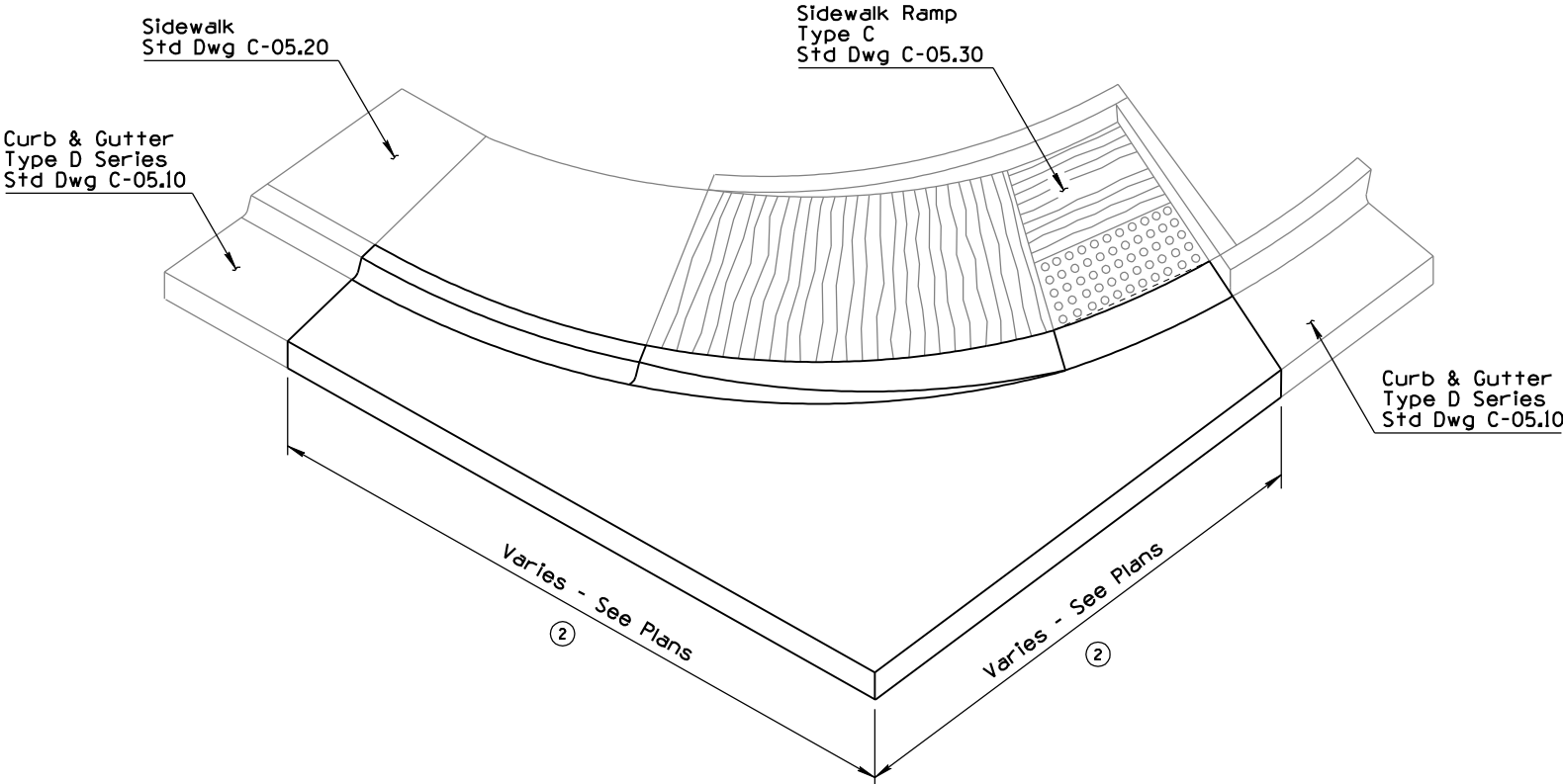
TYPE 6 - SINGLE CURB OR CURB & GUTTER TRANSITION  
(Curb & Gutter Shown)



TYPE 7 - CURB & GUTTER TRANSITION



TYPE 8 - CURB & GUTTER TRANSITION

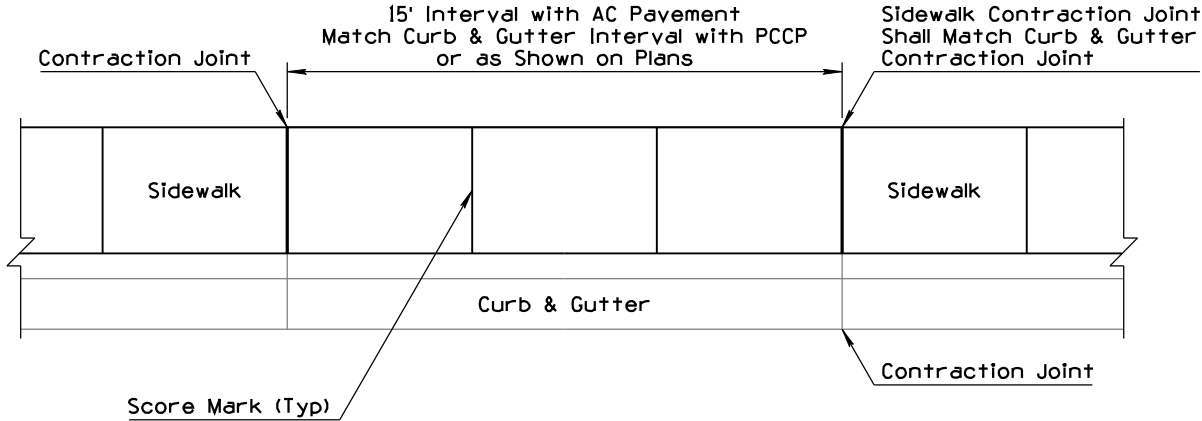


TYPE 9 - CURB & GUTTER TRANSITION

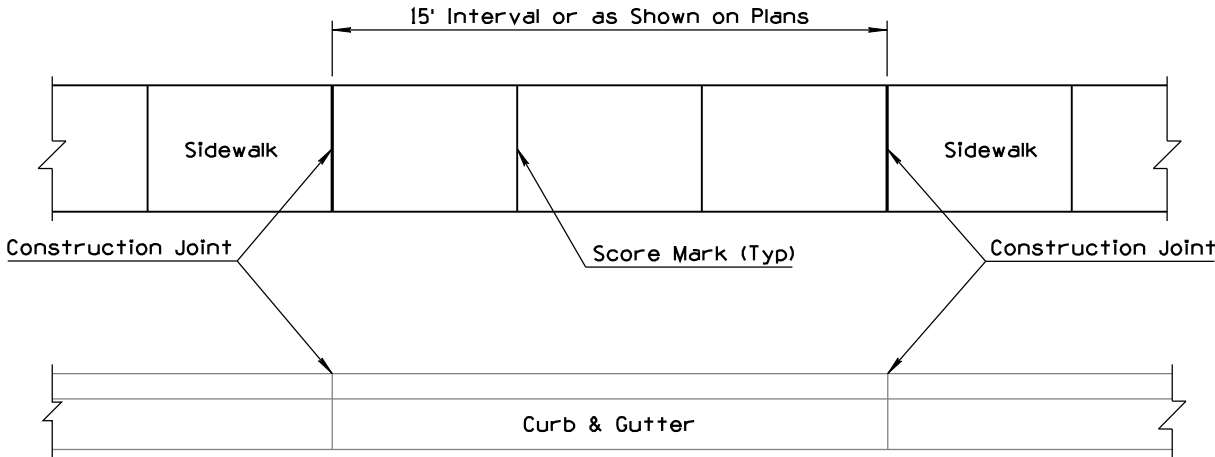
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CURB AND GUTTER TRANSITIONS	DRAWING NO. ① C-05.12 Sheet 3 of 3



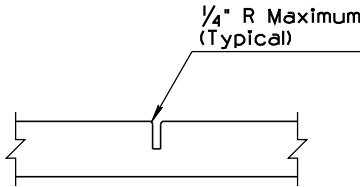
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 5, REARRANGED 3, 4 & 5	RLF	9/04
2	ADDED SLOPE SPECIFICATIONS & REVISED SECTION VIEWS	RLF	7/05
3			
4			



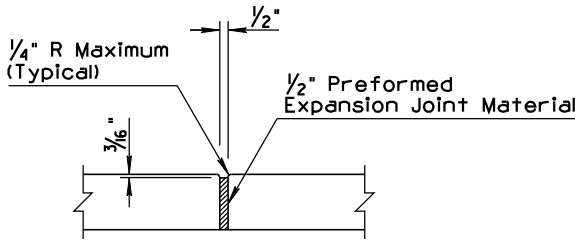
SIDEWALK ADJACENT TO CURB



SIDEWALK SETBACK FROM CURB



CONTRACTION JOINT DETAIL



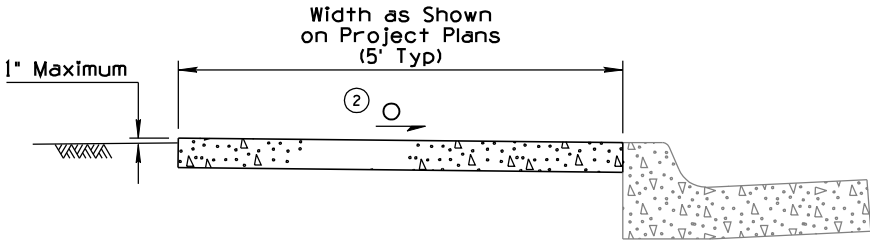
EXPANSION JOINT DETAIL

① GENERAL NOTES

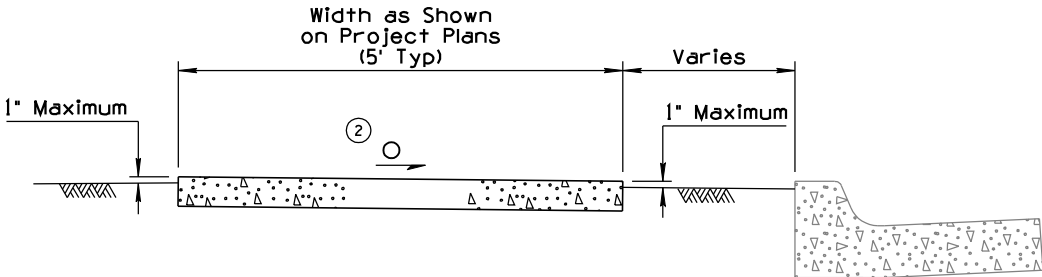
- Unless otherwise specified, sidewalks shall be 4" thick.
- One-inch deep transverse contraction joints shall be placed in sidewalks at intervals of approximately 15' or at a spacing that matches adjacent curb and gutter. If the sidewalk is over 7' in width, a 2" deep longitudinal contraction joint shall be placed in the center of the sidewalk. The maximum area of sidewalk without contraction joints or scoring lines shall be approximately 36 square feet. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a 1/4" radius.
- Score marks shall be 1/4" in depth. They shall be placed at 5' spacing when the contraction joint interval is 15' and at 6' spacing when the contraction joint interval is 12'.
- Expansion joints shall be located between sidewalks and driveways and all abutting structures. Expansion joints shall match the joints in the adjacent concrete pavement or existing concrete curb and sidewalk. Maximum length of sidewalk without an expansion joint shall be 60 transverse feet. The 1/2" joint filler shall extend the full depth of the concrete.
- Concrete shall be finished by means of a float, then steel trowelled and then broomed with a fine brush in a transverse direction.

② LEGEND

- Minimum slope = 0.01' Per Ft
- Maximum slope = 0.02' Per Ft



CONCRETE SIDEWALK ADJACENT TO CURB

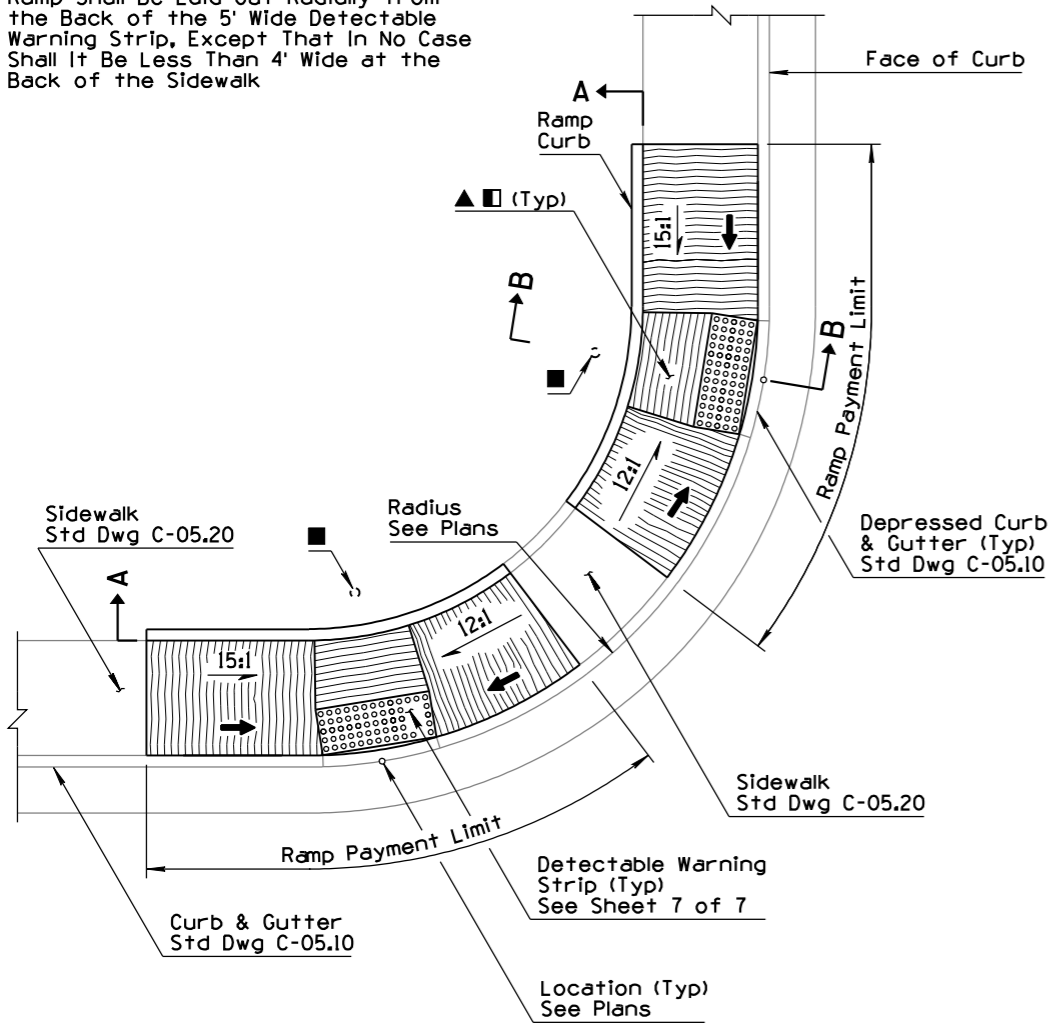


CONCRETE SIDEWALK SETBACK FROM CURB

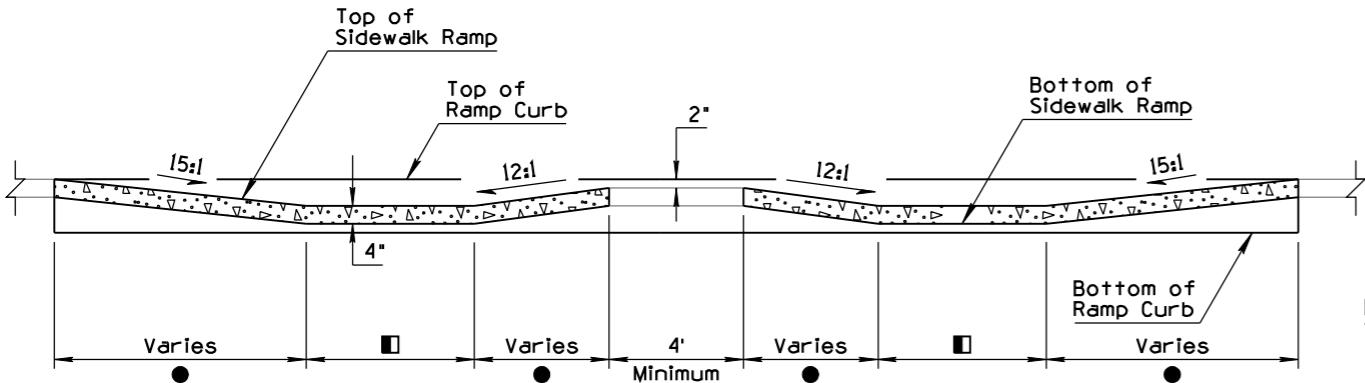
APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE DRIVEWAYS & SIDEWALKS SIDEWALKS	DRAWING NO. C-05.20 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	4/06
2			
3			
4			

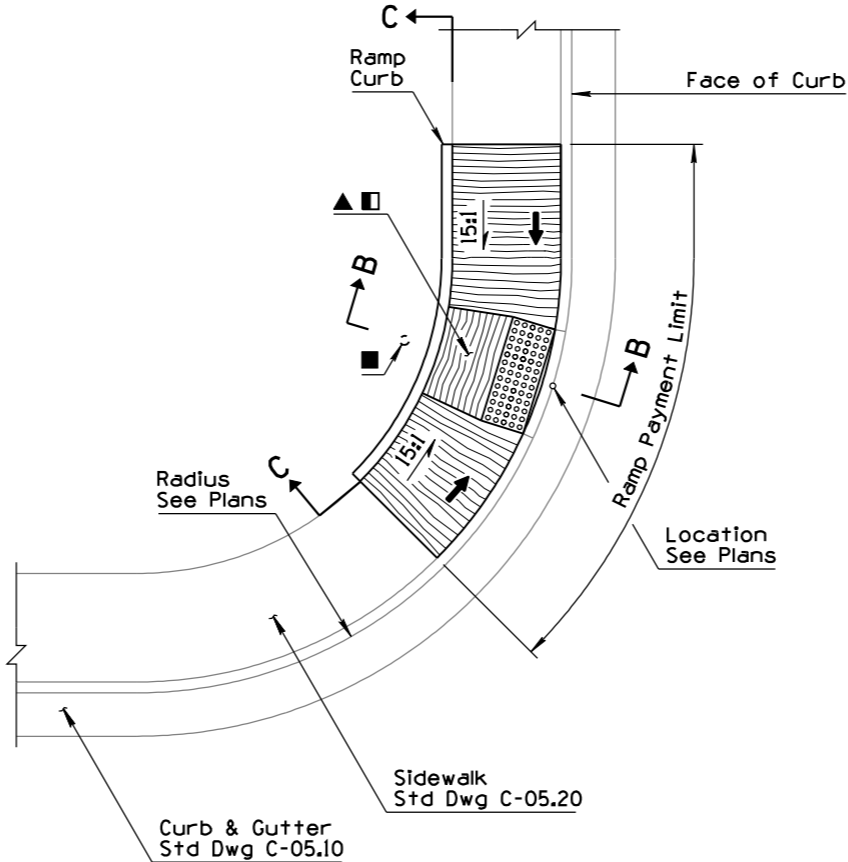
Ramp Shall Be Laid Out Radially from the Back of the 5' Wide Detectable Warning Strip, Except That In No Case Shall It Be Less Than 4' Wide at the Back of the Sidewalk



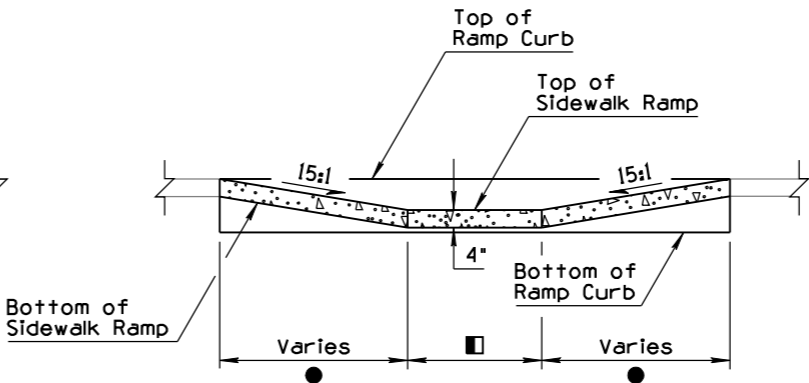
TWO CROSSING DIRECTIONS  
AT CORNER



SECTION  
A-A



ONE CROSSING DIRECTION  
AT CORNER



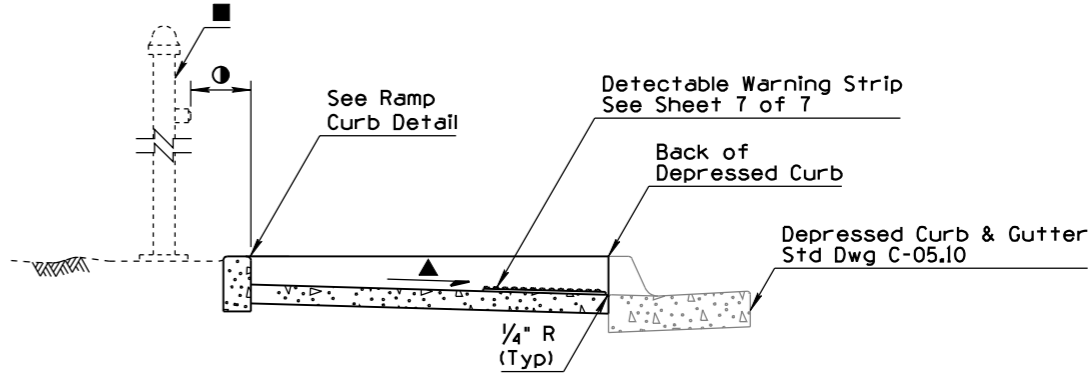
SECTION  
C-C

### GENERAL NOTES

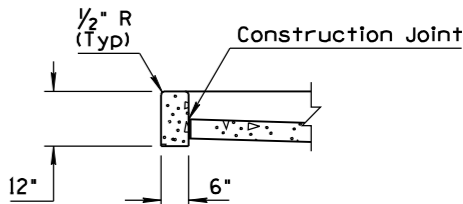
- Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
  - The 12:1 and 15:1 ramp slopes shown are the steepest slopes allowed for a ramp 10 ft long or less. Where the 12:1 or 15:1 slopes would require the ramp to extend longer than 10 feet, the ramp may be limited to a 10 ft length with slopes steeper than 12:1 or 15:1. Ramp length is measured along the back of the sidewalk.
  - Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
  - Concrete shall receive a rough broom finish as shown.
  - See Std Dwgs C-05.10 and C-05.20 for joint details.
  - When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.
- See Note 3
  - 10" Maximum to Face of Pedestrian Push Button
  - Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information

### LEGEND

- Minimum Slope = 100:1 (0.01' /ft)
- Maximum Slope = 50:1 (0.02' /ft)



SECTION  
B-B

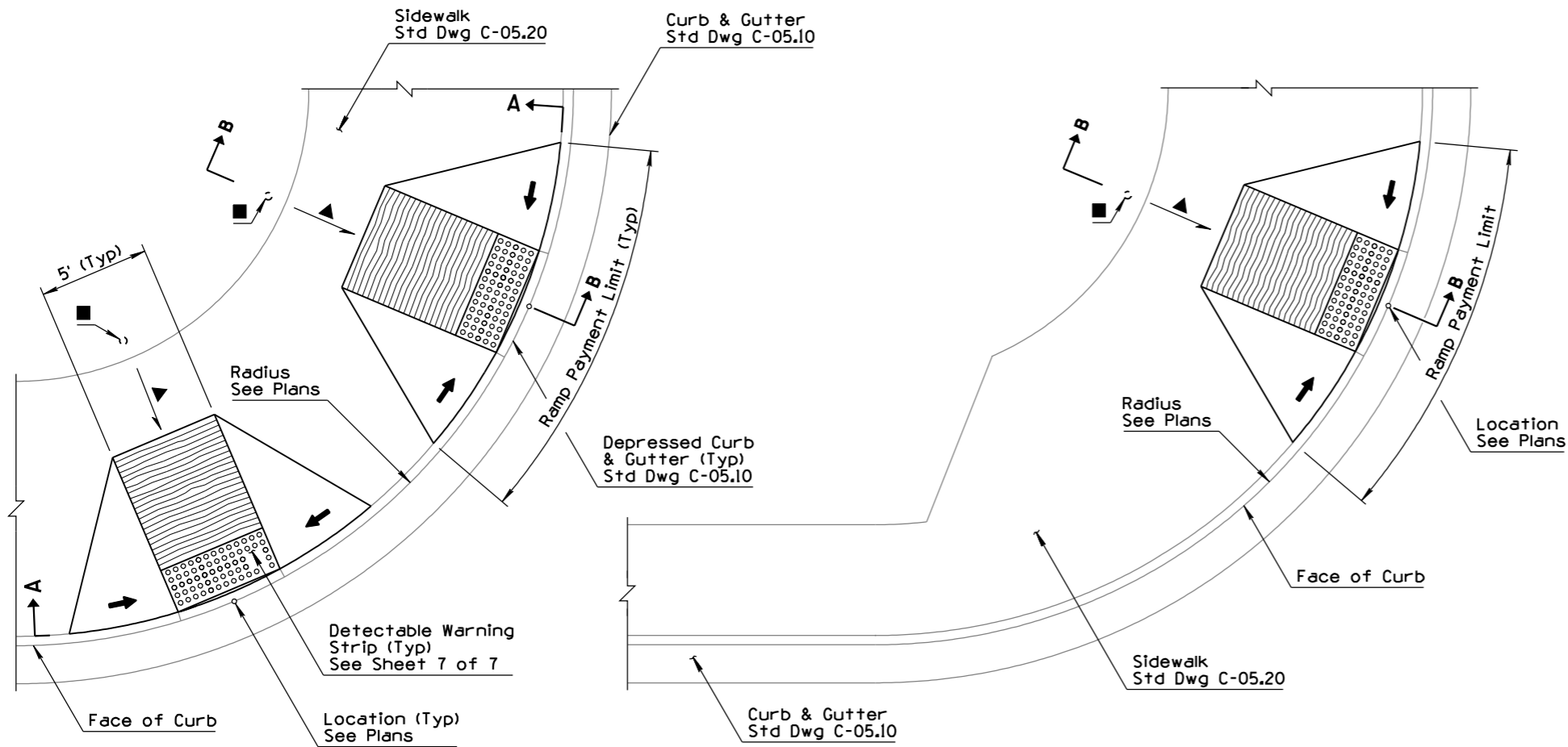


RAMP CURB DETAIL

PARALLEL SIDEWALK RAMP

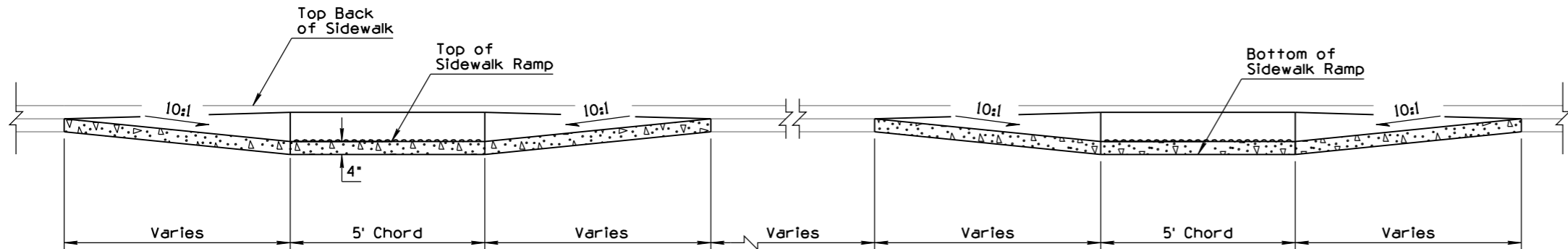
APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	SIDEWALK RAMP TYPE A	DRAWING NO. C-05.30 Sheet 1 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	4/06
2			
3			
4			

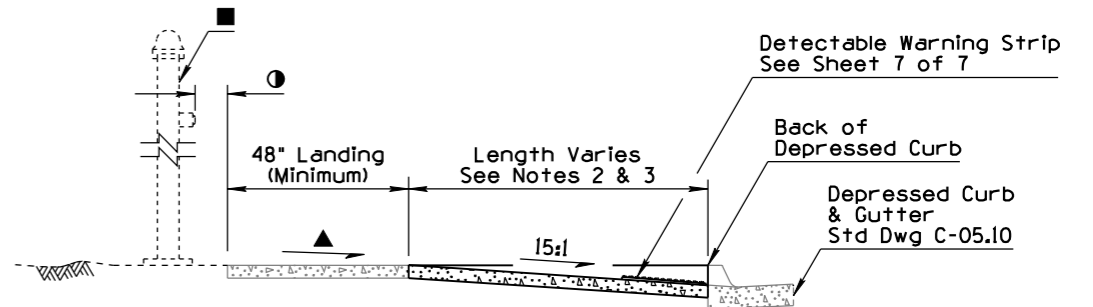


TWO CROSSING DIRECTIONS  
AT CORNER

ONE CROSSING DIRECTION  
AT CORNER



SECTION  
A-A



SECTION  
B-B

PERPENDICULAR CURB RAMP

## GENERAL NOTES

- Ramp centerline shall be radial from the face of the curb at the sidewalk ramp control point.
  - The 15:1 ramp slope shown is the steepest slope allowed for a ramp 10 ft long or less. Where the 15:1 slope would require the ramp to extend longer than 10 feet, the ramp may be limited to a 10 ft length with slope steeper than 15:1. Ramp length is measured along the back of the sidewalk.
  - Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
  - Concrete shall receive a rough broom finish as shown. The side slope wings do not receive a broom finish.
  - The Engineer may approve replacing the side slope wing with a curb at a location where access to the side of a ramp run is blocked by a pole, utility box, other obstruction, or by a non-accessible surface such as a dirt planter strip.
  - See Std Dwg C-05.10 and C-05.20 for joint details.
  - When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.
- Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information
- ① 10" Maximum to Face of Pedestrian Push Button

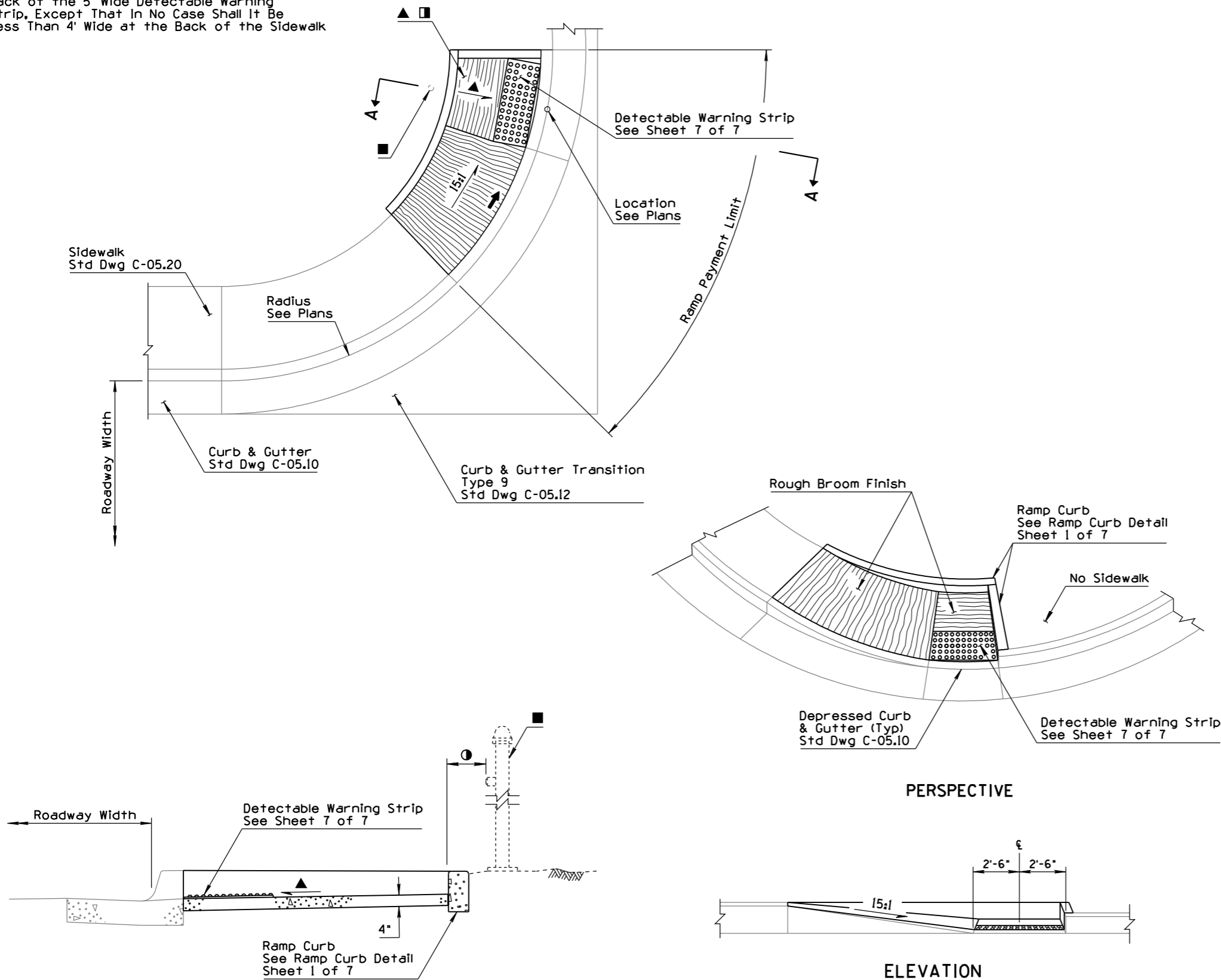
## LEGEND

- ▲ Minimum Slope = 100:1 (0.01 %/ft)
- ➔ Maximum Slope = 50:1 (0.02 %/ft)

APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE B	DRAWING NO. ① C-05.30 Sheet 2 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	4/06
2			
3			
4			

■ Ramp Shall Be Laid Out Radially from the Back of the 5' Wide Detectable Warning Strip, Except That In No Case Shall It Be Less Than 4' Wide at the Back of the Sidewalk



## GENERAL NOTES

- For use where sidewalk is not continuous.
- Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
- The 15:1 ramp slope shown is the steepest slope allowed for a ramp 10 ft long or less. Where the 15:1 slope would require the ramp to extend longer than 10 feet, the ramp may be limited to a 10 ft length with slope steeper than 15:1. Ramp length is measured along the back of the sidewalk.
- The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.
- Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
- Concrete shall receive a rough broom finish as shown.
- See Std Dwgs C-05.10 and C-05.20 for joint details.
- When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.
- Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information
- ① 10" Maximum to Face of Pedestrian Push Button

## LEGEND

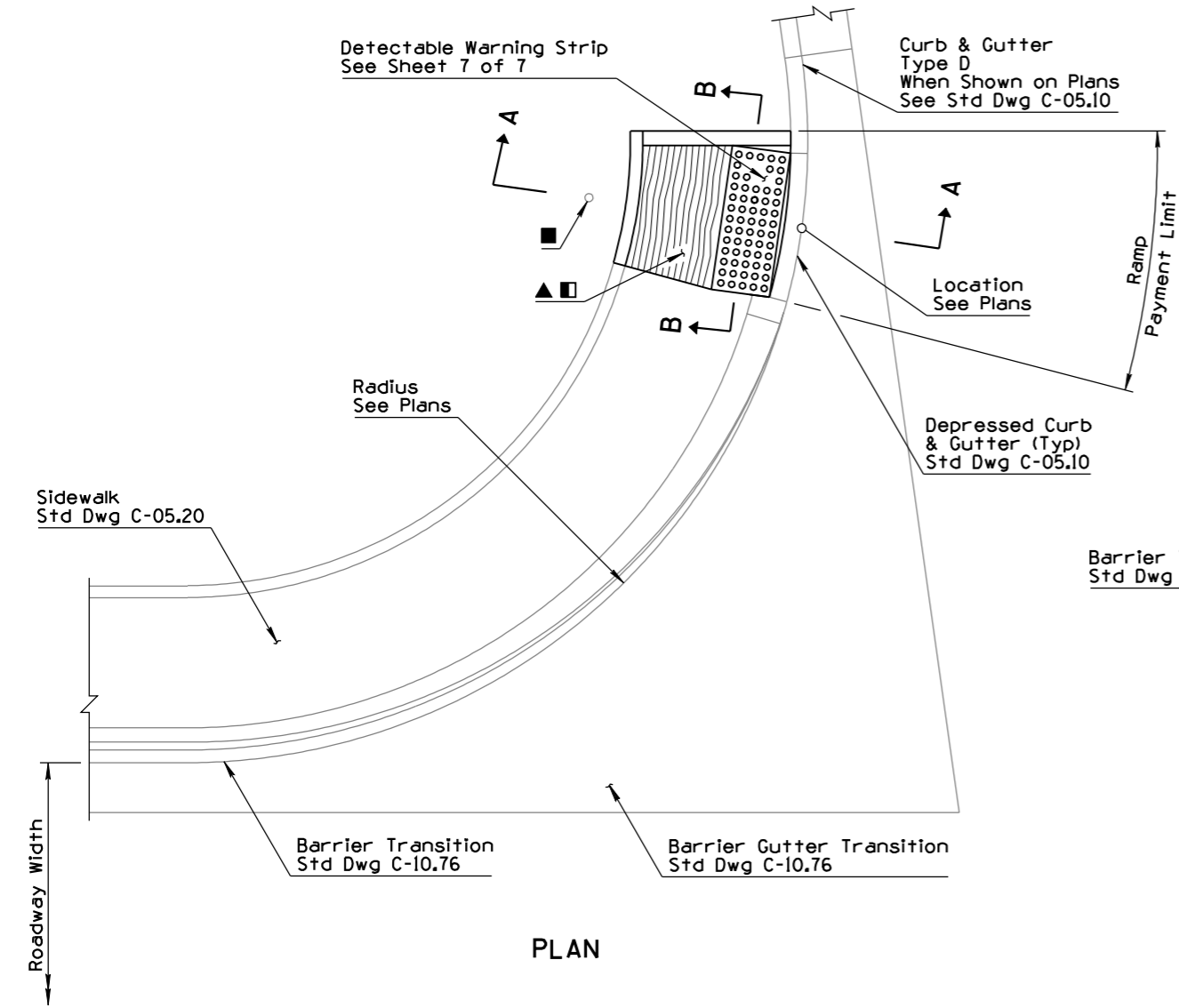
- ▲ Minimum Slope = 100:1 (0.01 '/ft)
- ➔ Maximum Slope = 50:1 (0.02 '/ft)

## SIDEWALK RAMP AT SIDEWALK TERMINUS

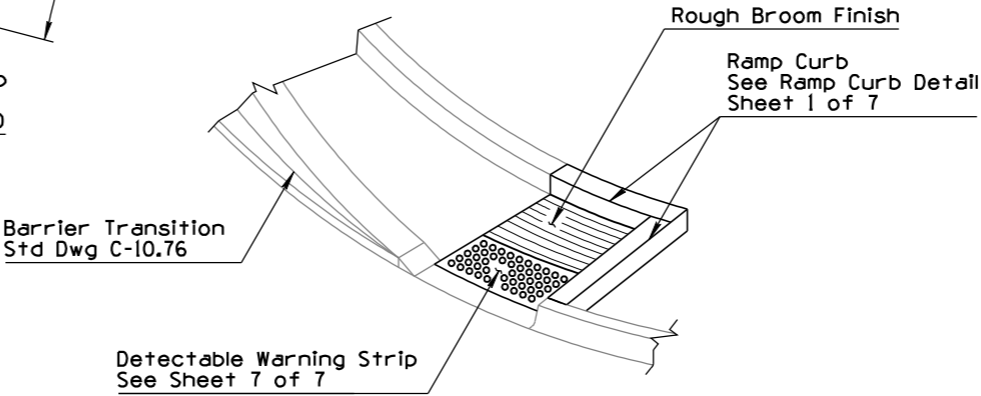
APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. <b>4/06</b>
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE C	DRAWING NO. ① <b>C-05.30</b> Sheet 3 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	4/06
2			
3			
4			

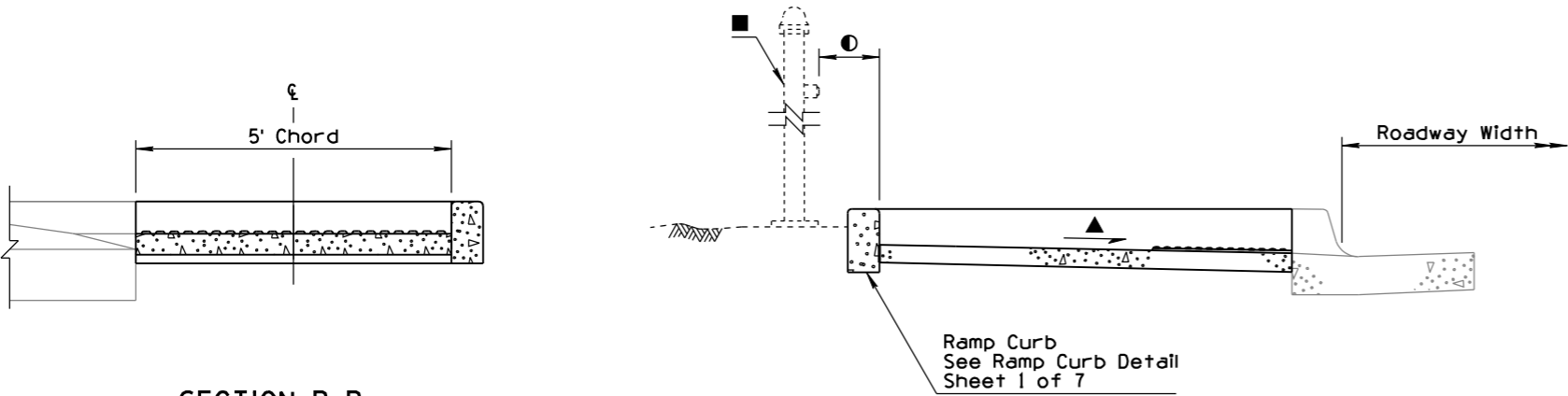
■ Ramp Shall Be Laid Out Radially from the Back of the 5' Wide Detectable Warning Strip, Except That In No Case Shall It Be Less Than 4' Wide at the Back of the Sidewalk



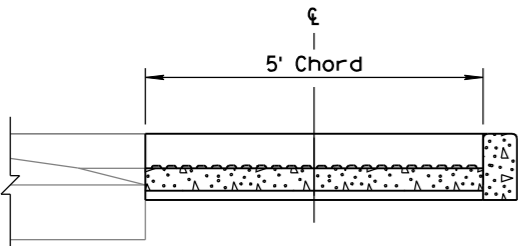
PLAN



PERSPECTIVE



SECTION A-A



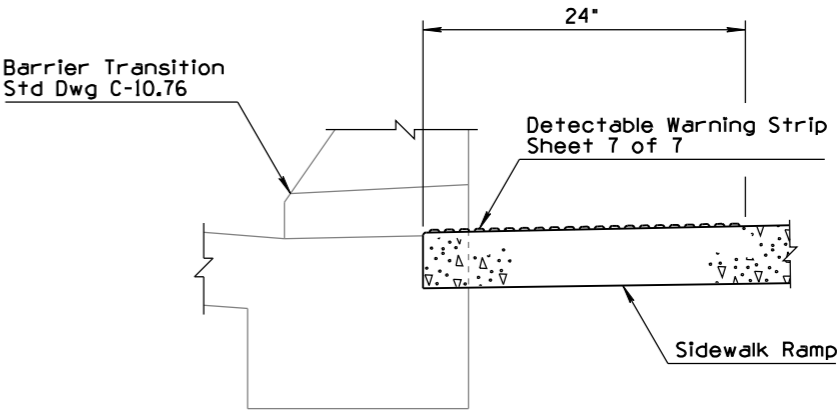
SECTION B-B

GENERAL NOTES

1. For use where sidewalk is not continuous.
  2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
  3. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.
  4. Drainage inlets should not be located within marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
  5. Concrete shall receive a rough broom finish as shown.
  6. See Std Dwgs C-05.10 and C-05.20 for joint details.
  7. When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.
- Pedestrian Push Button Post When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information
- ① 10" Maximum to Face of Pedestrian Push Button

LEGEND

- ▲ Minimum Slope = 100:1 (0.01 %/ft)
- Maximum Slope = 50:1 (0.02 %/ft)

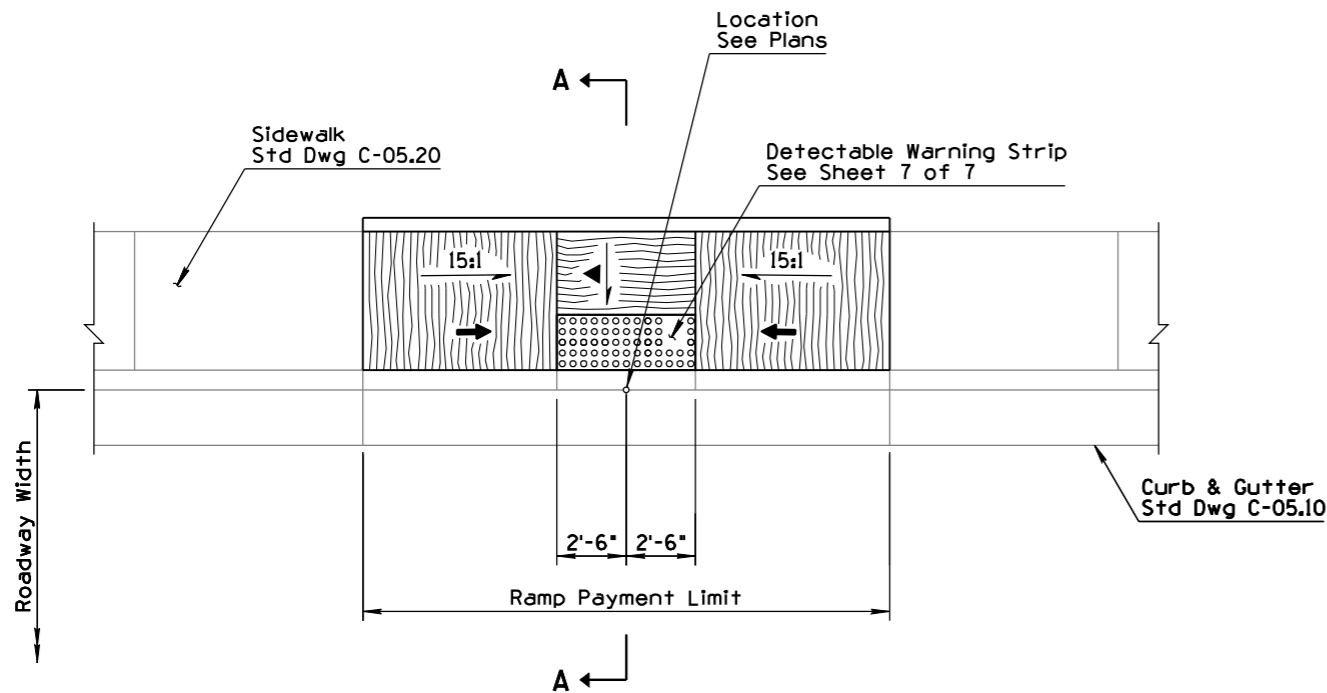


DETAIL

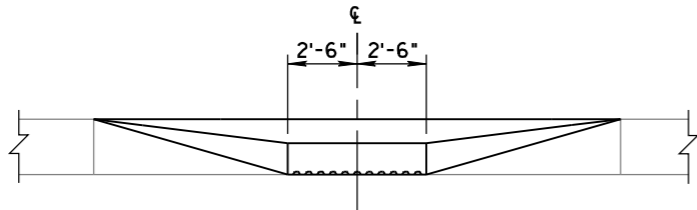
SIDEWALK RAMP AT SIDEWALK TERMINUS  
SIDEWALK BEHIND BARRIER

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE D	DRAWING NO. ① C-05.30 Sheet 4 of 7

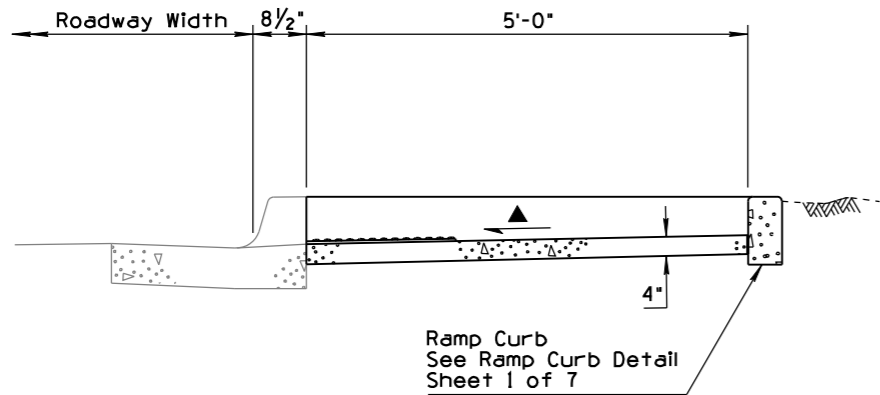
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	4/06
2			
3			
4			



PLAN



ELEVATION  
DEPRESSED CURB AT SIDEWALK RAMP



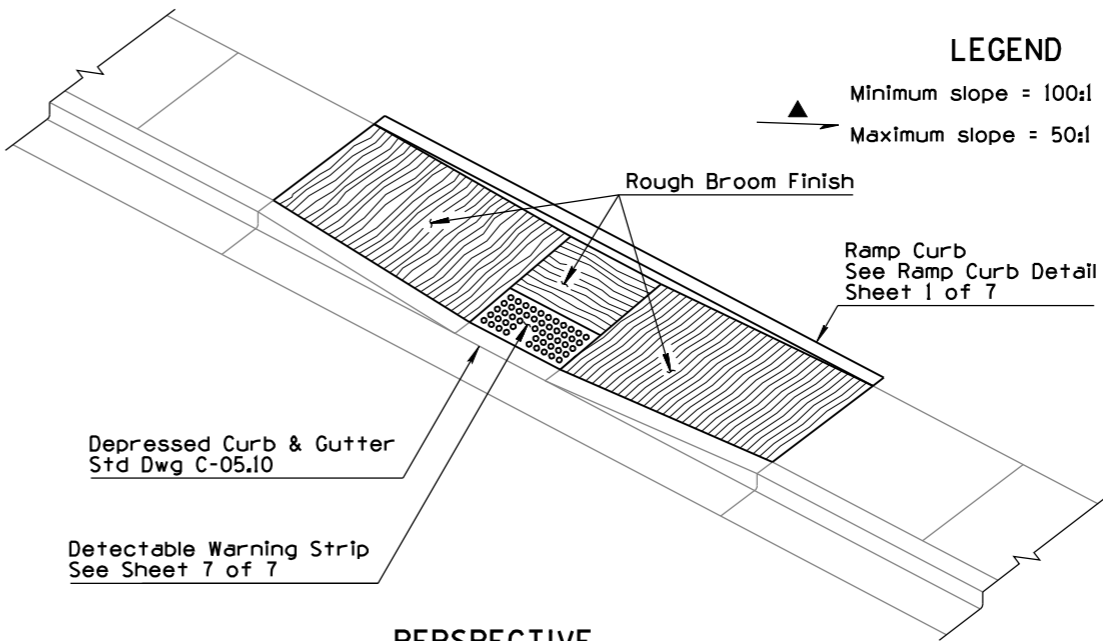
SECTION A-A

GENERAL NOTES

- For use at mid-block locations.
- Ramp centerline shall be perpendicular to the face of the curb at the Sidewalk Ramp Control Point.
- The 15:1 ramp slope shown is the steepest slope allowed for a ramp 10 ft long or less. Where the 15:1 slope would require the ramp to extend longer than 10 feet, the ramp may be limited to a 10 ft length with slope steeper than 15:1. Ramp length is measured along the back of the sidewalk.
- For sidewalk widths greater than shown on C-05.20, the overall Sidewalk Ramp depth shall match the sidewalk width.
- Ramp curb height to match elevation at back of adjacent sidewalk.
- Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.
- Concrete shall receive a rough broom finish as shown.
- See Std Dwgs C-05.10 and C-05.20 for joint details.
- When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.

LEGEND

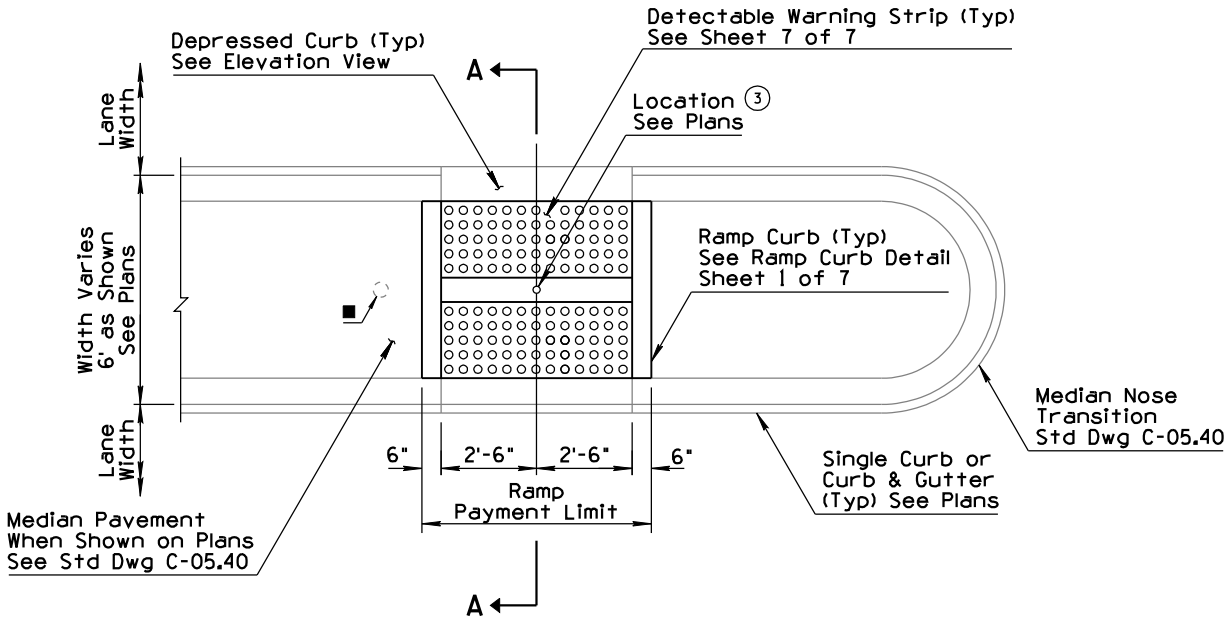
- ▲ Minimum slope = 100:1 (0.01 %/ft)  
→ Maximum slope = 50:1 (0.02 %/ft)



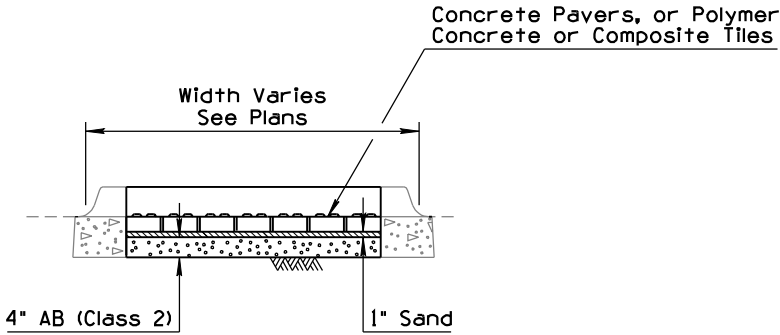
PERSPECTIVE

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE E	DRAWING NO. ① C-05.30 Sheet 5 of 7

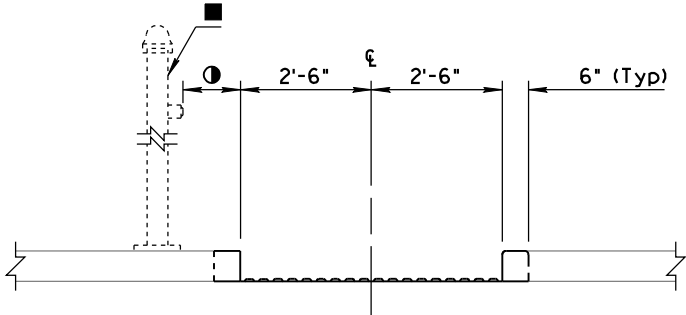
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD AS SHEET 6 OF 7	RLF	9/04
2	ADDED GENERAL NOTE	RLF	7/05
3	REVISED NOTE	RLF	7/05
4			



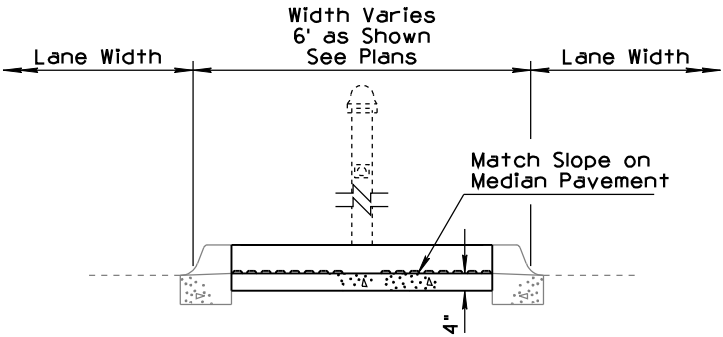
PLAN



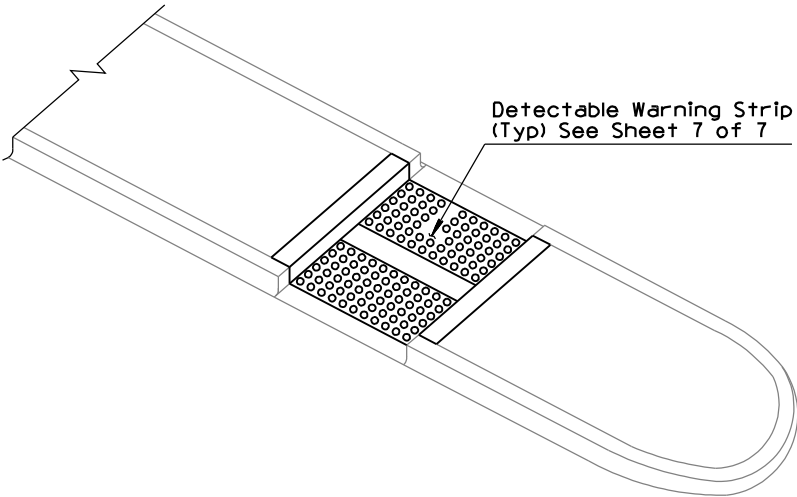
SECTION A-A  
(For Median Widths Less Than 5'-5")



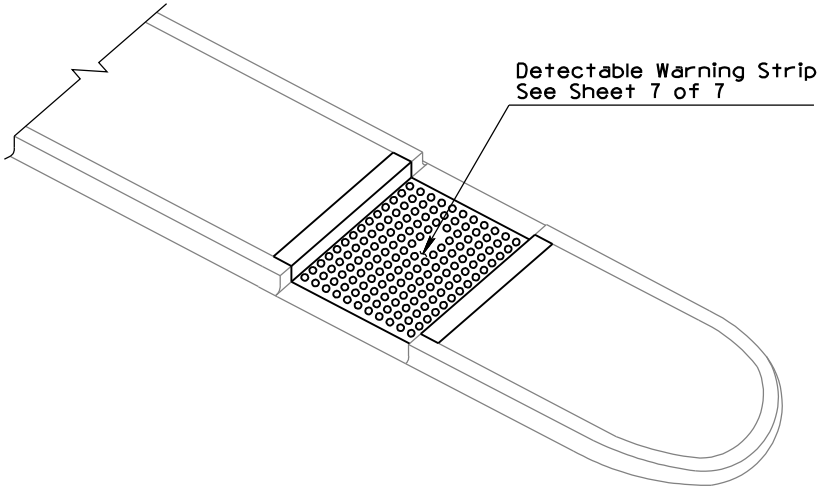
ELEVATION  
DEPRESSED CURB AT SIDEWALK RAMP



SECTION A-A  
(For Median Widths Greater Than 5'-5")



PERSPECTIVE  
(For Median Widths Greater Than 5'-5")



PERSPECTIVE  
(For Median Widths 5'-5" And Less)  
See Note 1

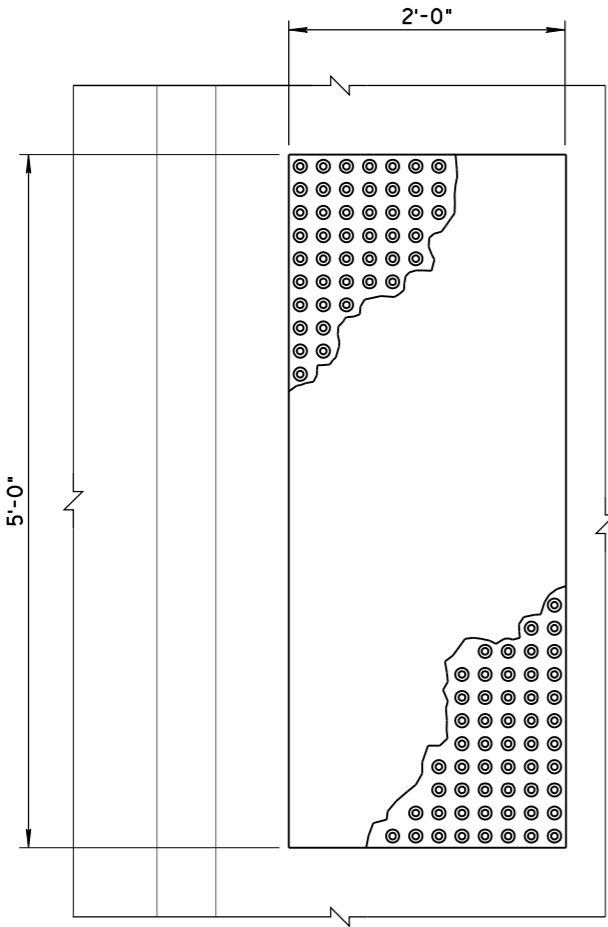
### GENERAL NOTES

- For median widths 5'-5" and less, the Detectable Warning Strip shall be continuous from back-of-curb to back-of-curb. The Detectable Warning Strip shall not extend beyond the back of curb. Modular units such as bricks or tiles shall be used to construct the Detectable Warning Strip. Partial domes at the edge of the Strip shall be ground flush with the brick or tile surface.
  - Use Type A1 curb if median is to be landscaped.
  - Single curb shown; see plans for Curb & Gutter application.
  - When installing brick detectable warning strips, the contractor shall take measures to avoid damaging the truncated domes. Bricks with damaged domes shall be replaced by the contractor at no additional cost.
- Pedestrian Push Button Pole When Shown on Plans. See Traffic Signal Plans for Additional Information
- 10" Maximum to Face of Pedestrian Push Button

### SIDEWALK RAMP AT MEDIAN ISLAND CROSSING

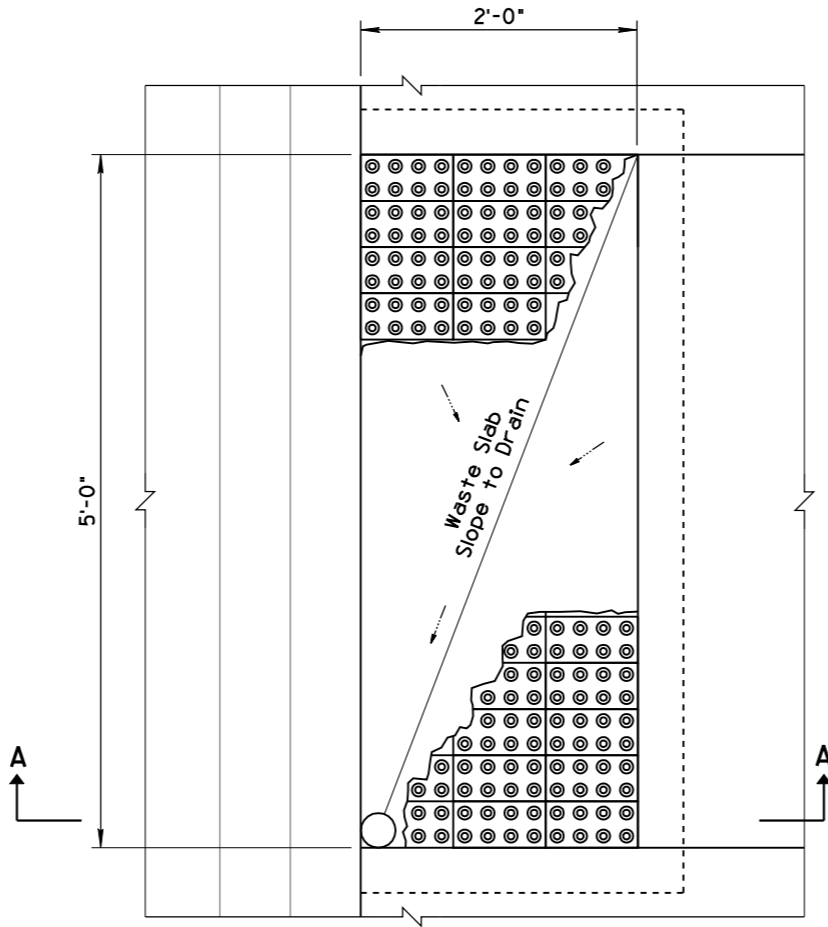
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP TYPE F	DRAWING NO. ① C-05.30 Sheet 6 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED PLAN & SECTION FOR BRICK OPTION	RLF	4/06
2	REVISED TITLE	RLF	4/06
3			
4			



DETECTABLE WARNING STRIP

PLAN

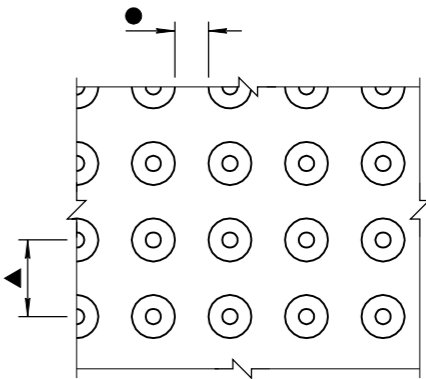


DETECTABLE WARNING STRIP  
BRICK OPTION

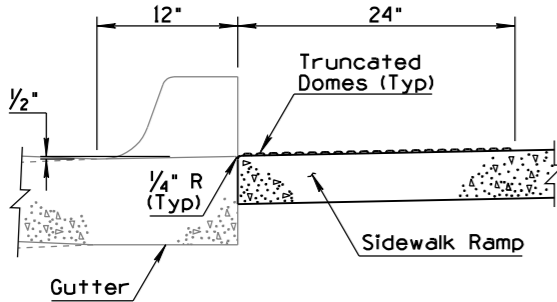
① PLAN

- GENERAL NOTES
1. Drain shall be placed in low corner and filled with coarse aggregate (AASHTO N43 Size 7) securely tied in a long-life geotextile sack.

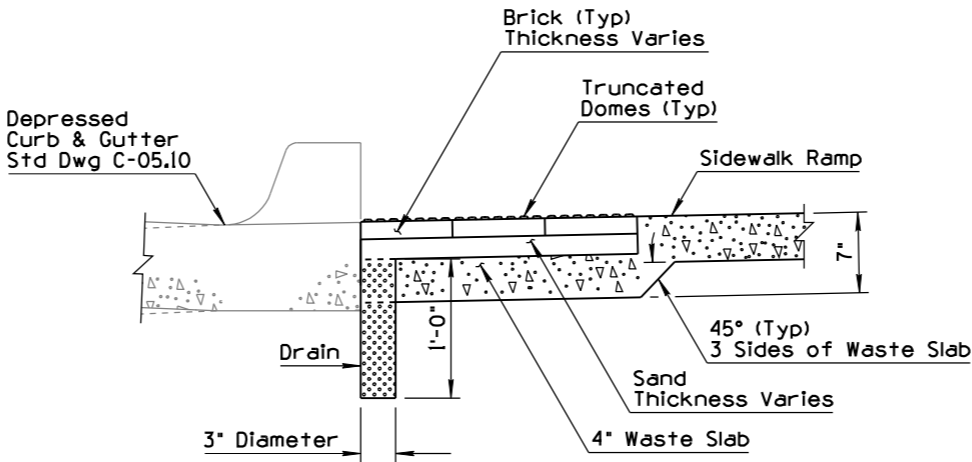
- LEGEND
- 1/16" Minimum (Typ) (0.65" Minimum ADA Actual)
  - ▲ 1 5/8" to 2 3/8" (Typ) (1.6" to 2.4" ADA Actual)
  - 7/8" to 1 3/8" (Typ) (0.9" to 1.4" ADA Actual)
  - 50% to 65% of ■



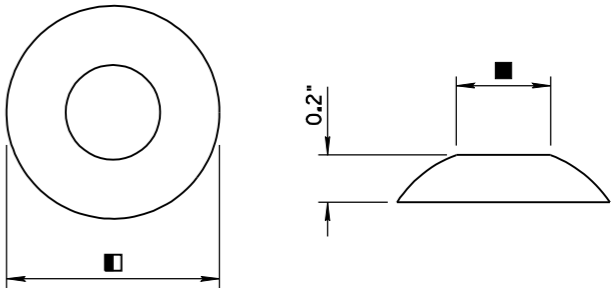
TEXTURE PATTERN DETAIL



SECTION ②



SECTION ①



PLAN ②

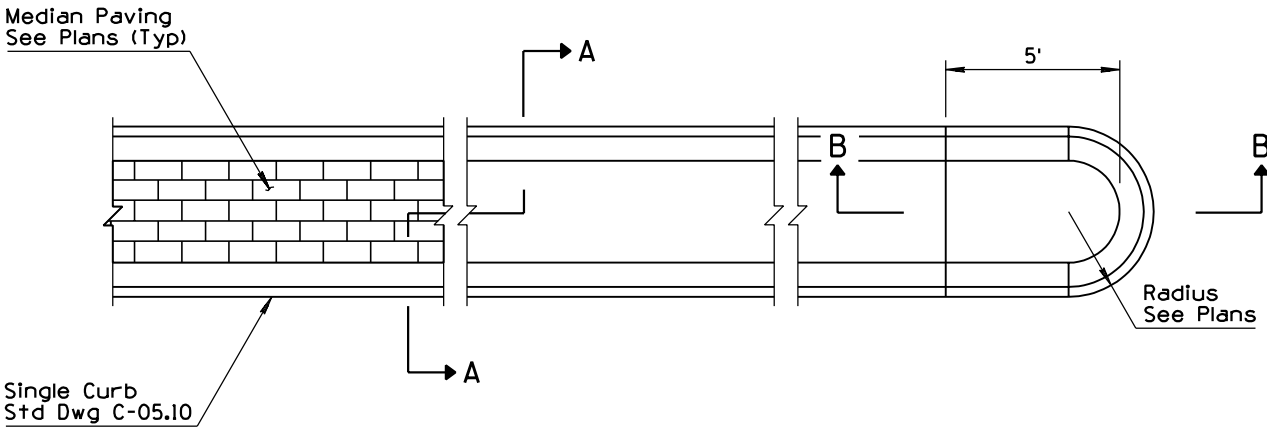
ELEVATION ②

TRUNCATED DOME DETAIL

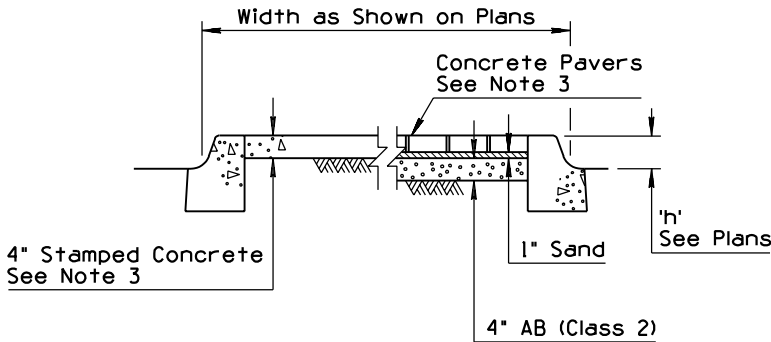
②

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	SIDEWALK RAMP DETECTABLE WARNING STRIP	DRAWING NO. C-05.30 Sheet 7 of 7

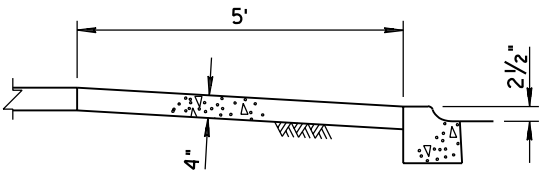
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			



PLAN



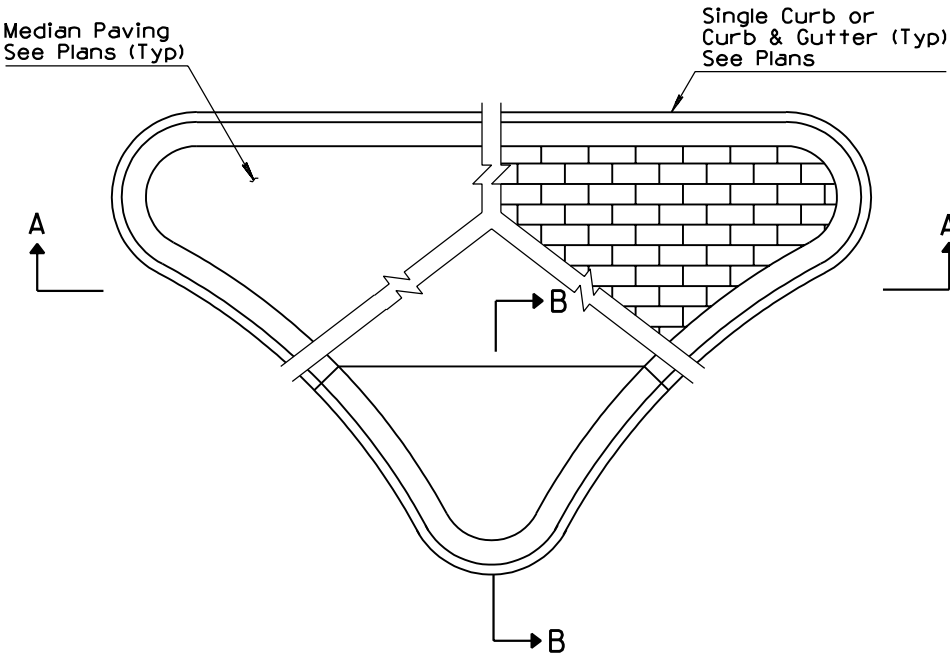
SECTION A-A



SECTION B-B

GENERAL NOTES

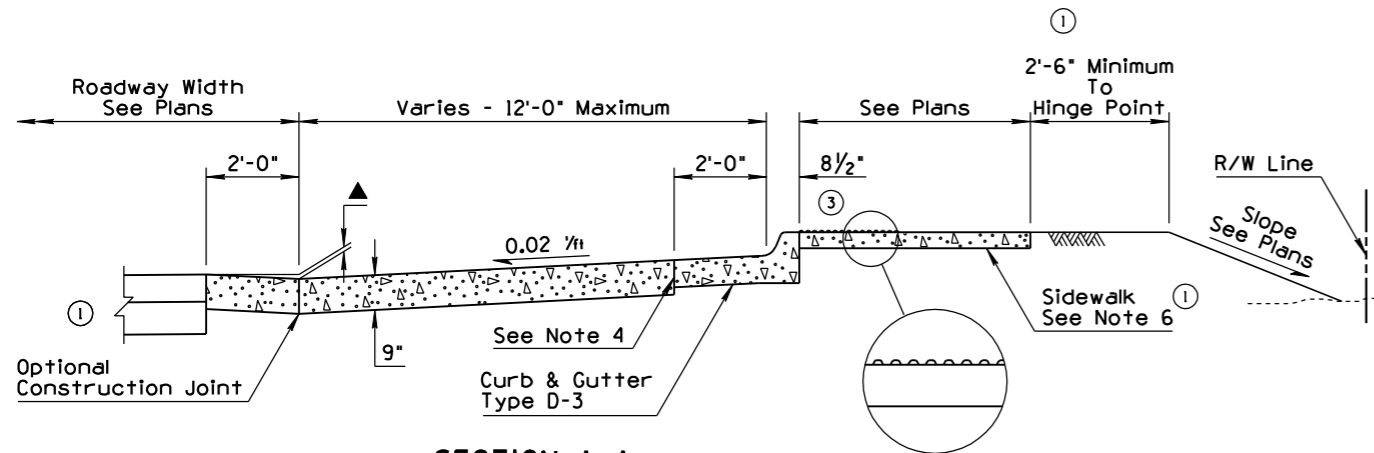
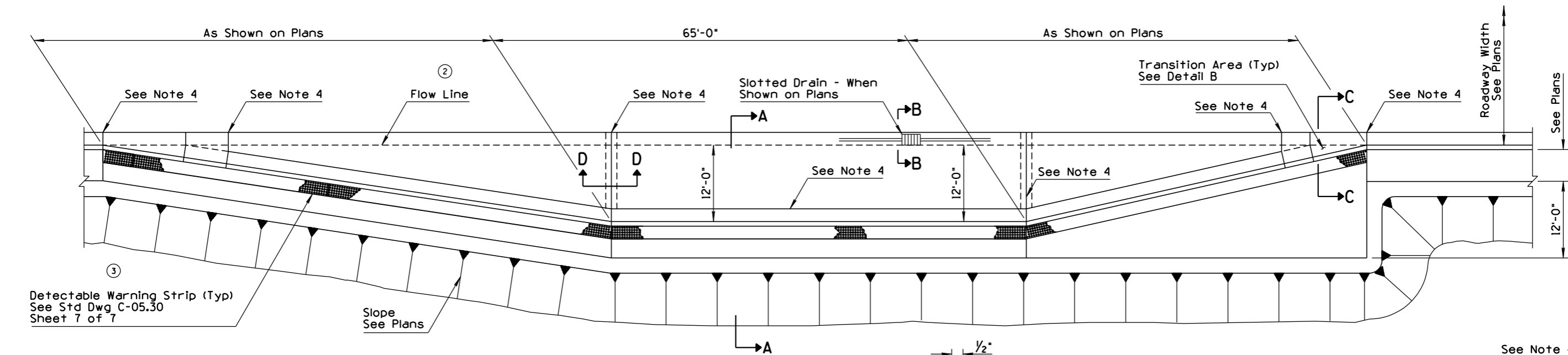
1. Traffic signal foundations, traffic sign foundations and pull boxes for traffic signs and traffic signals shall be installed prior to placement of median paving.
2. See Std Dwgs C-05.10 and C-05.20 for joint requirements.
3. Decorative median paving may be stamped concrete, concrete pavers, or as specified on the project plans.
4. Decorative median paving shall not be placed on a median nose transition or on a median island on a structure.
5. A 4"x6" concrete header shall be used to end decorative paving at locations when concrete sidewalk ramps are not present.
6. Median nose transitions shall not be placed on departure ends of raised medians.
7. See Bridge Group Plans for raised median on structures.
8. Median paving shall be Class B concrete.



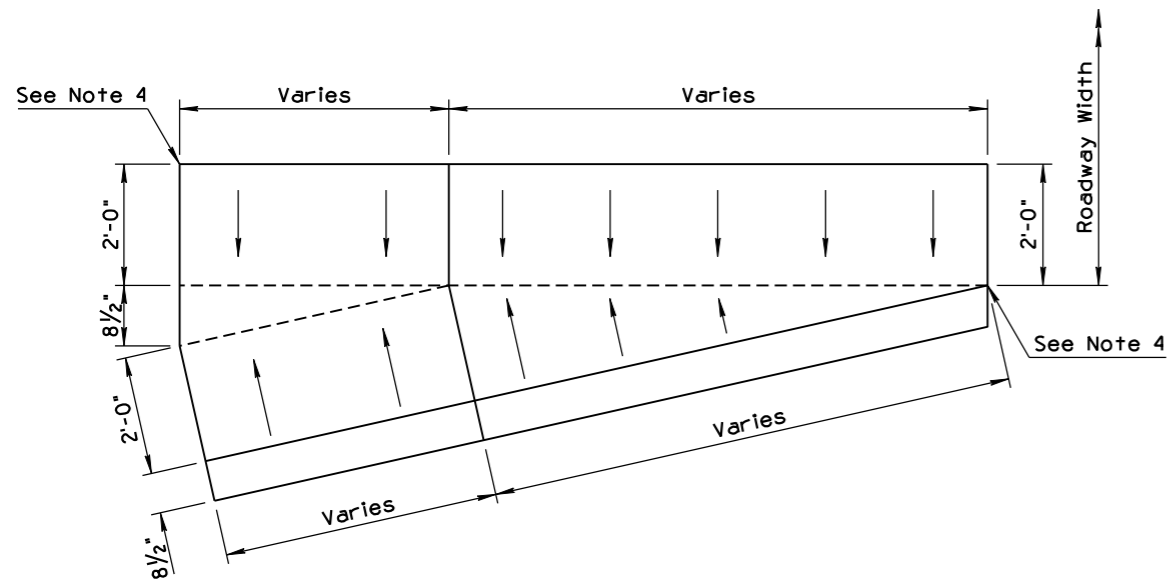
NOSE LAYOUT

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	MEDIAN PAVING AND NOSE TAPER	DRAWING NO. ① C-05.40

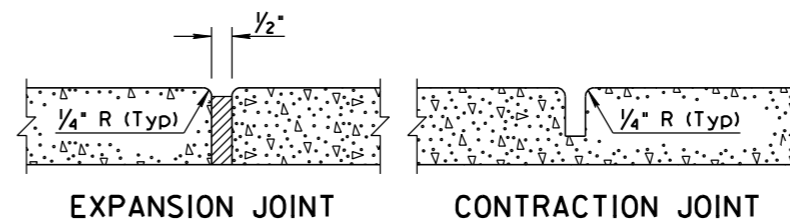
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SECTION A-A	RLF	11/06
2	ADDED 'FLOW LINE' CALLOUT	RLF	11/06
3	ADDED DETECTABLE WARNING STRIPS	RLF	11/06
4			



SECTION A-A

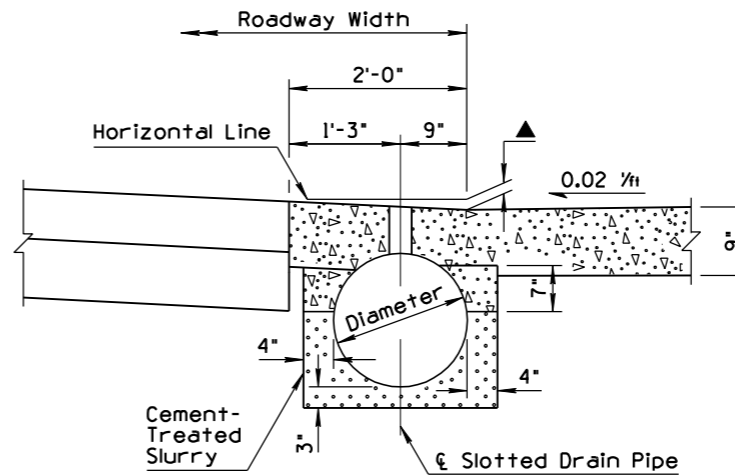


DETAIL B

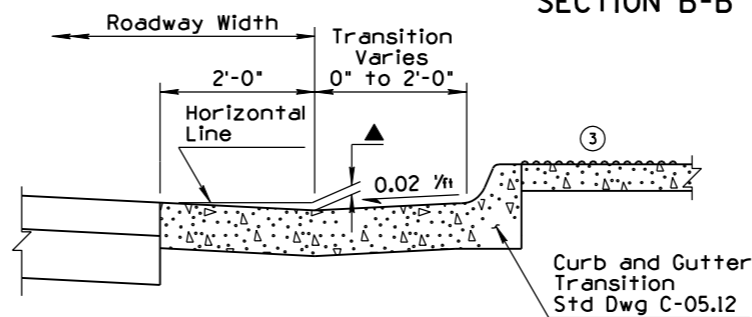


EXPANSION JOINT CONTRACTION JOINT

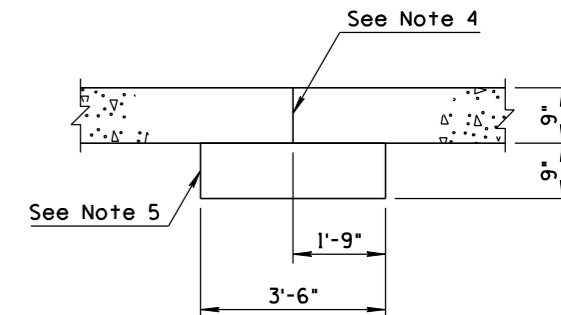
DETAIL A



SECTION B-B



SECTION C-C



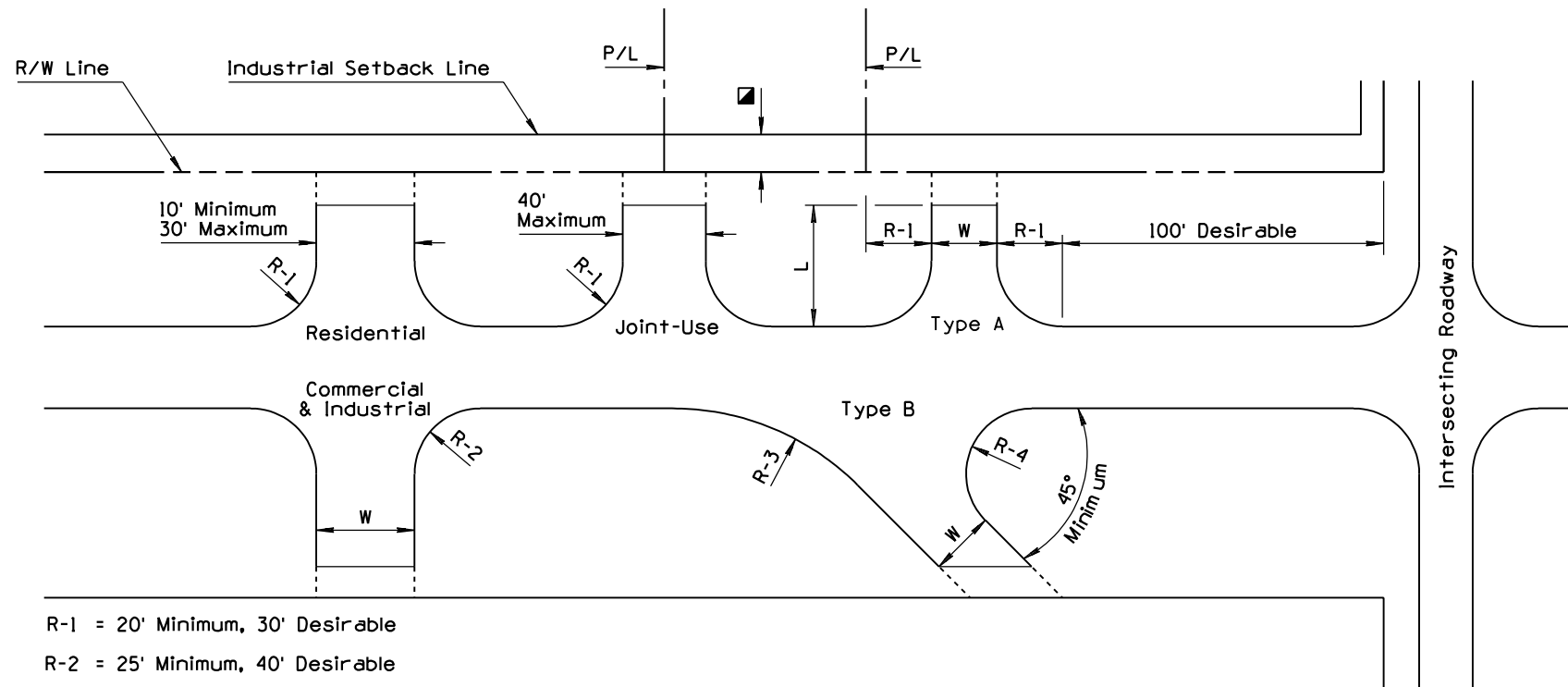
SECTION D-D

GENERAL NOTES

1. The PCCP surfaces within the bus bay area shall be textured transversely. Surface texturing to conform to Std Spec 401.
  2. Transverse weakened-plane joints shall be constructed at a maximum spacing of 15' and shall align with joints in the concrete curb and gutter.
  3. For additional data on slotted drains, see Std Dwg C-13.60.
  4. For 1/2" expansion joint with preformed joint fillers, see Detail A.
  5. Concrete pad to be poured separately from concrete bus bay pavement.
  6. For sidewalk construction details, see Std Dwg C-05.20.
- ▲ See Plans: match the adjacent gutter depression

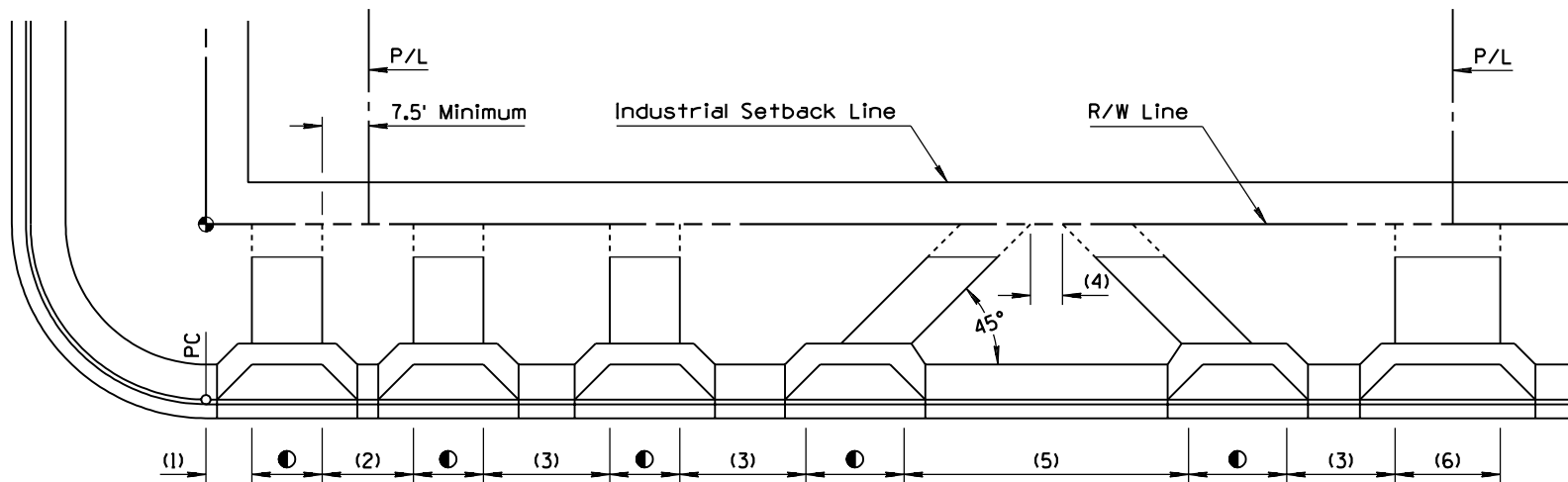
APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 11/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE BUS BAY	DRAWING NO. C-05.50

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED NOTE & REMOVED PREVIOUS TYPE B TURNOUT	RLF	9/04
2			
3			
4			



- R-1 = 20' Minimum, 30' Desirable  
R-2 = 25' Minimum, 40' Desirable  
R-3 = 80'  
R-4 = 20' Minimum  
W = 25' Minimum, 40' Maximum  
■ - See Proper City or County Regulation

RURAL DEVELOPMENTS



- (1) 10' Minimum, 20' Desirable  
(2) 15' Minimum  
(3) 25' Minimum, 40' Desirable  
(4) 40' Minimum  
(5) One Way Couplet for Use Only on One Way Roadways  
(6) 40' Maximum Joint-Use Driveways  
● Residential - 10' Minimum, 30' Maximum  
● Commercial - One Way: 15' Minimum, 30' Maximum  
Two Way: 25' Minimum, 40' Maximum  
● Industrial - 20' Minimum, 40' Maximum

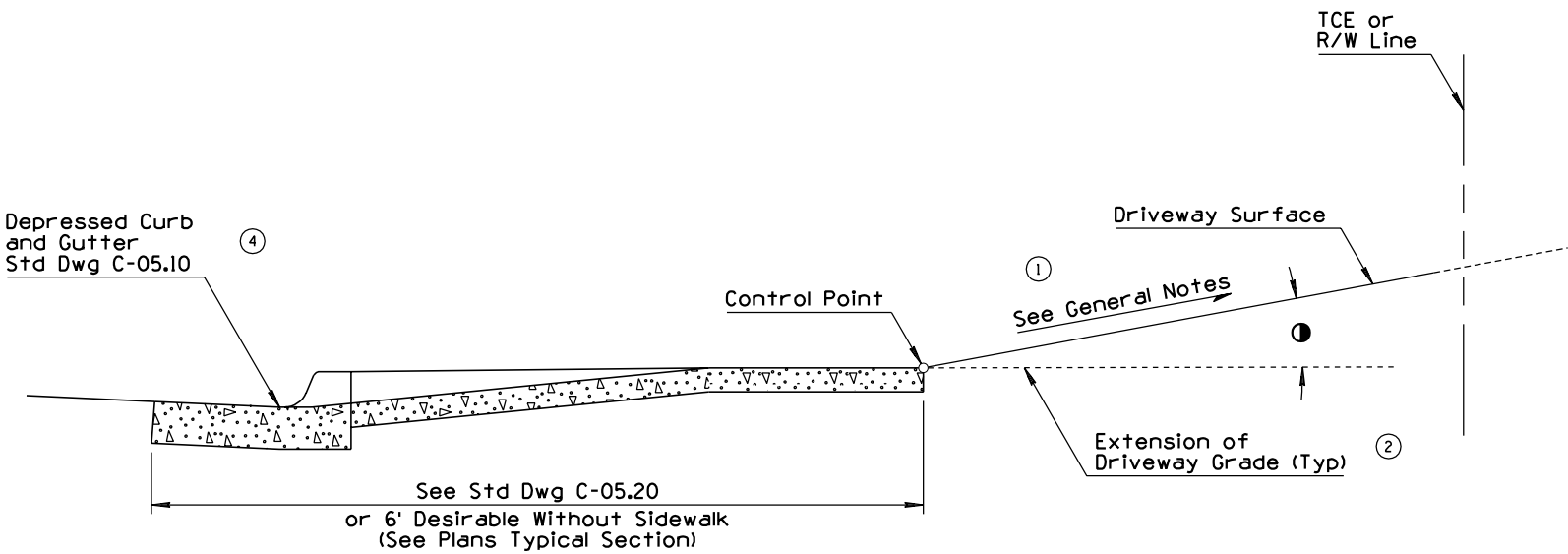
URBAN DEVELOPMENTS

GENERAL NOTES

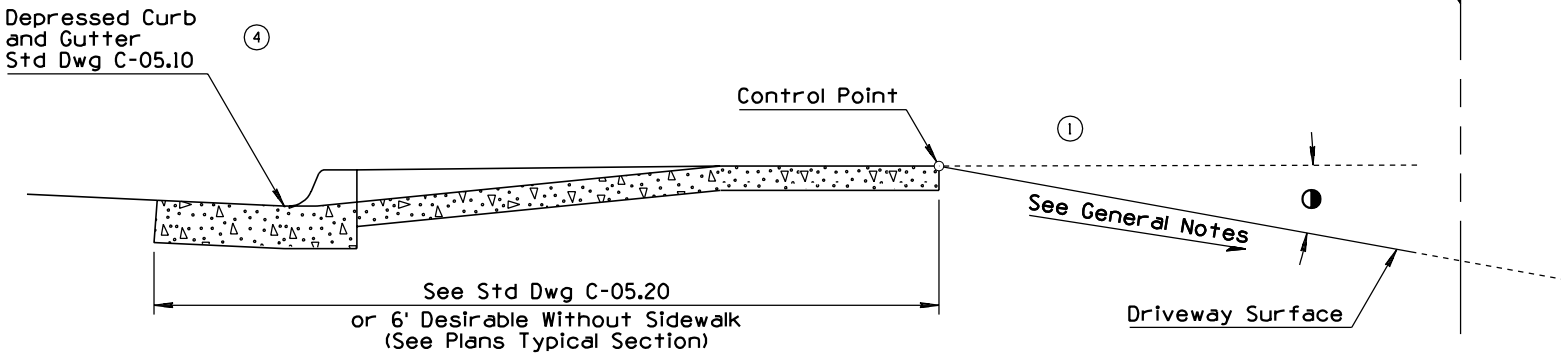
1. Driveway types:  
Residential - one providing access to a single family residence, to a duplex, or to an apartment building containing five or fewer dwelling units.  
Commercial - one providing access to an office, retail or institutional building or to an apartment building having more than five dwelling units.  
Industrial - one directly serving a substantial number of truck movements to and from loading docks of an industrial facility, warehouse or truck terminal.
- ① 2. Joint-use driveways may become desirable for landowners of adjacent properties to service both properties. If this is the case, only one of the two adjacent landowners need apply for the access permit, but a recorded joint-use easment, signed by all parties involved, must accompany the application form. The property line can be located anywhere, in reference to the driveway, depending on mutual agreement.
- ① 3. Driveways for high volume traffic generators shall be approved individually by Regional Traffic Engineering or the Traffic Engineering Group.
- ① 4. Driveways with curb returns in urban areas shall be installed only with the approval of Regional Traffic Engineering or the Traffic Engineering Group.
5. Driveways and depressed curbs shall be located as noted on plans or as directed by the Engineer.
6. Drainage structures shall be provided under driveways where necessary.
7. Dimensions indicated as minimum shall be avoided whenever possible in favor of those indicated as desirable.
- ① 8. The Type "A" turnout is the preferable turnout design. Type "B" shall only be used when absolutely necessary.
9. Paved turnouts & plan notations will be W X L, surface material, type and standard. Example: 20' X 30' ACTO, Type A, Std Dwg C-06.10. Show radius (R) graphically.
10. Construction of curb, gutter, sidewalk and drainage facilities in urban areas by the permittee along that portion of the highway frontage under permit application, may be a stipulation of the permit approval if there appears to be reasonable need.
11. Excavation or embankment for turnouts shall be included in quantities for main roadways.
12. Base material shall be the same as that shown for main roadway, unless otherwise noted.
13. Desirable sideslope for rural turnouts is 6:1.

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	DRIVEWAY & TURNOUT LAYOUTS	DRAWING NO. C-06.10 Sheet 1 of 2

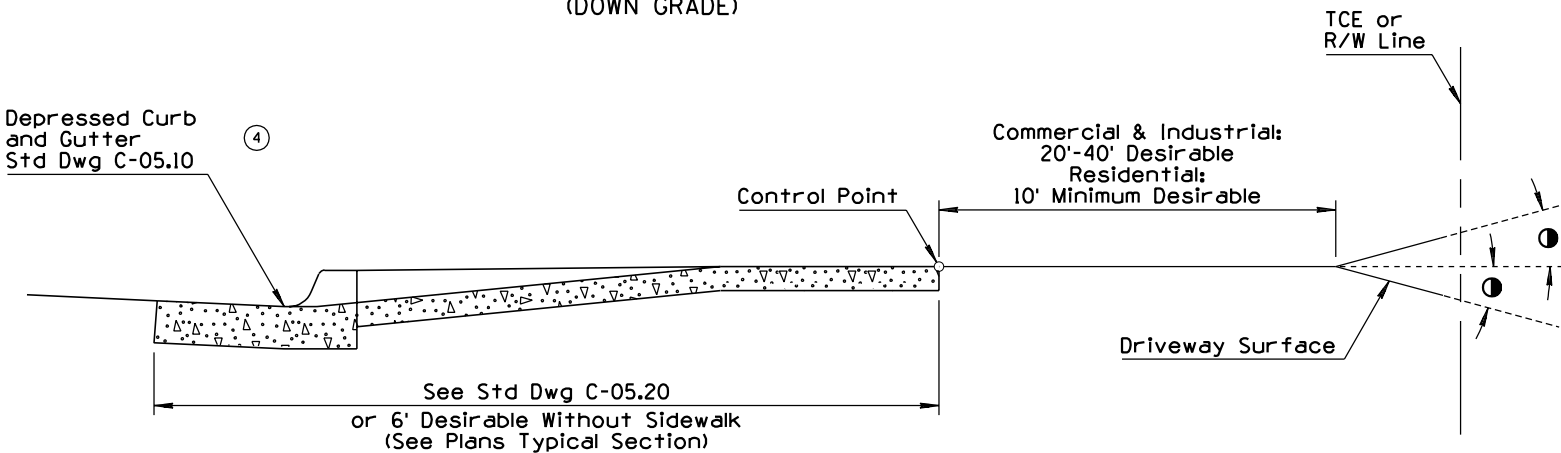
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ROTATED DRIVEWAY BEYOND SIDEWALK	PNB	10/95
2	ADDED NOTE	PNB	10/95
3	MODIFIED TITLE	BAF	8/98
4	ADDED DEPRESSED CURB & GUTTER CALLOUT	RLF	4/04



URBAN CROSS SECTION  
(UP GRADE)



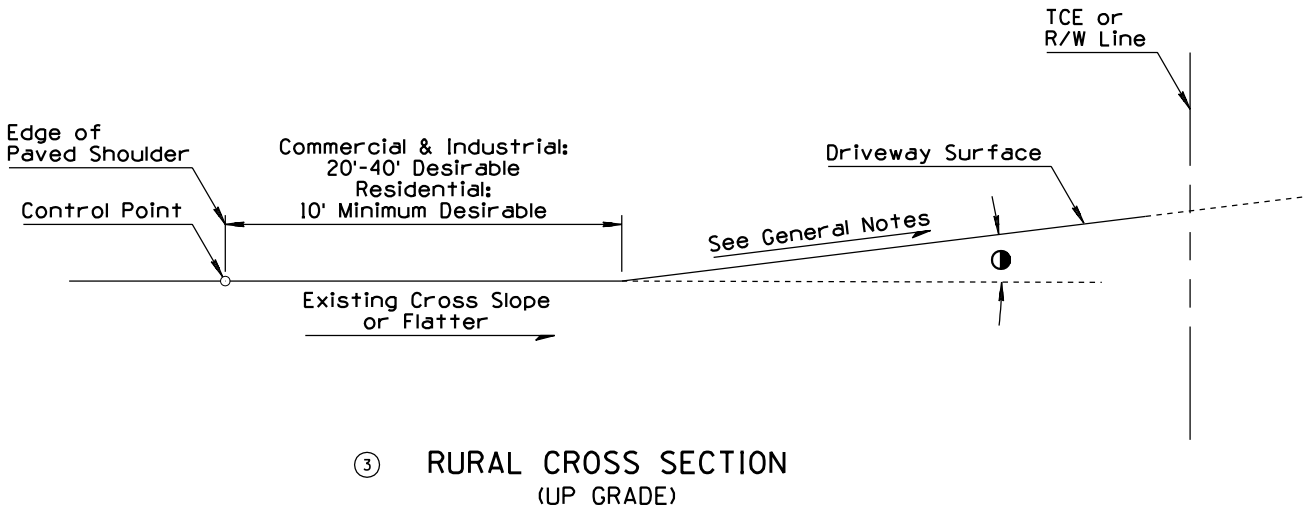
URBAN CROSS SECTION  
(DOWN GRADE)



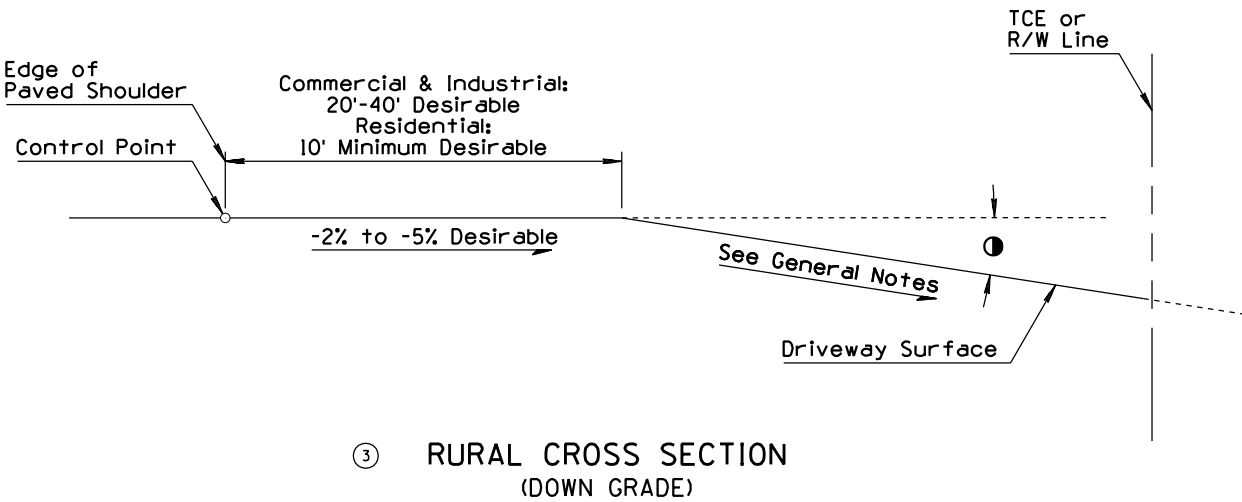
DESIRABLE URBAN CROSS SECTION

GENERAL NOTES

1. Grade as shown on plans or as negotiated between property owner and Engineer.
2. When field conditions require modifications to plans, contact design engineer for assistance.
3. See Sheet 1 of 2 for all other General Notes.
- 1 Break angle greater than 6% requires a vertical curve, L=10' minimum. Vertical curve shall not encroach on roadway or sidewalk.



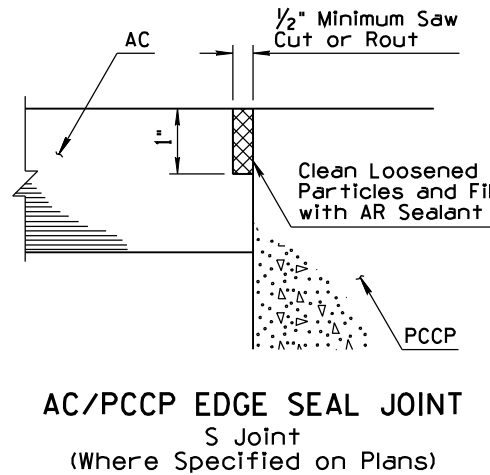
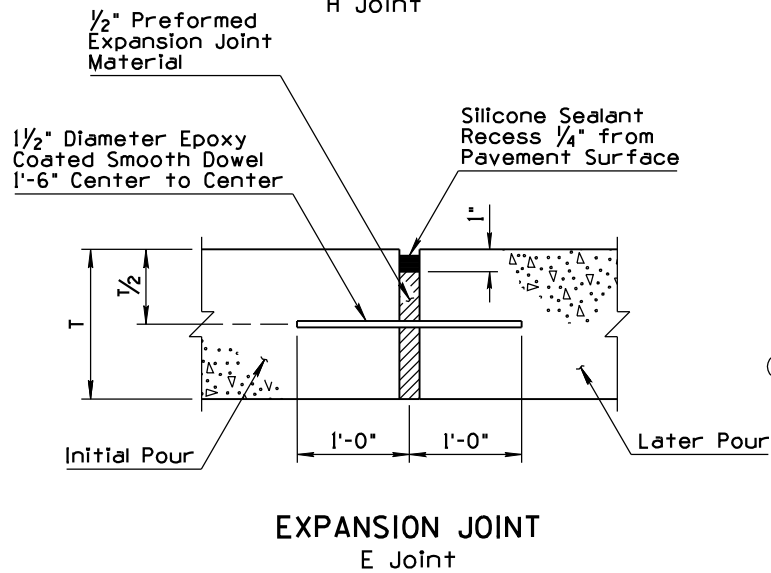
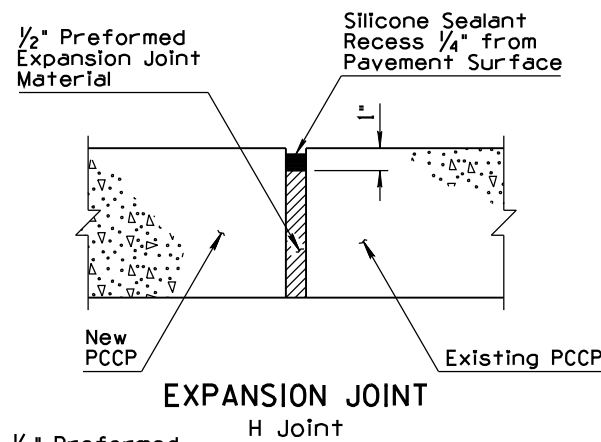
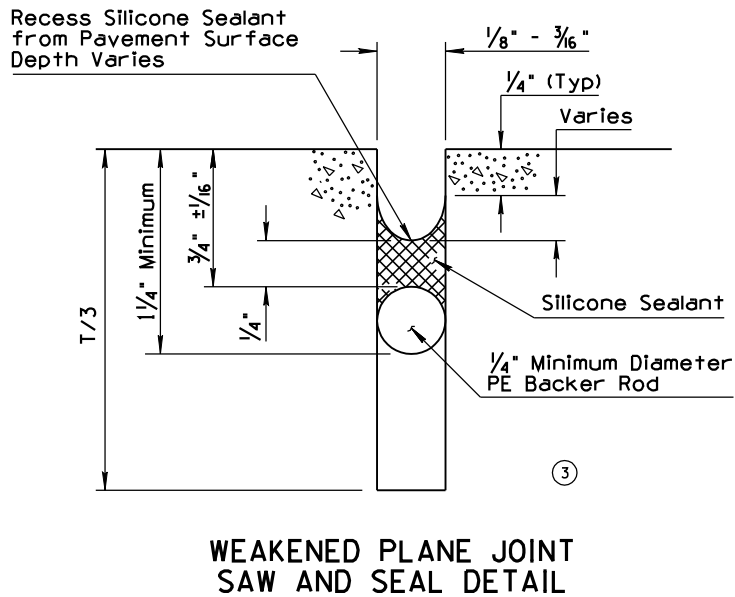
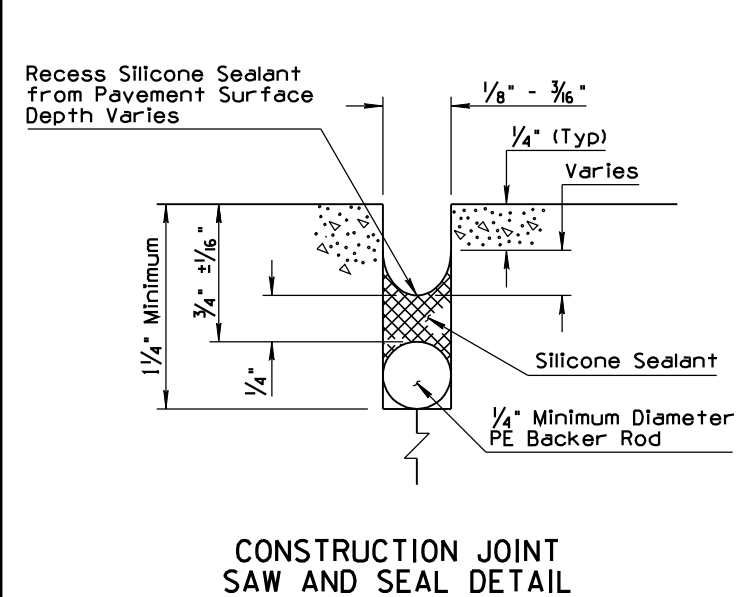
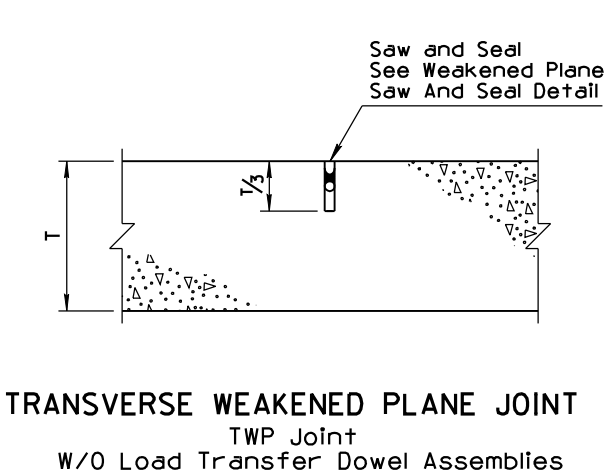
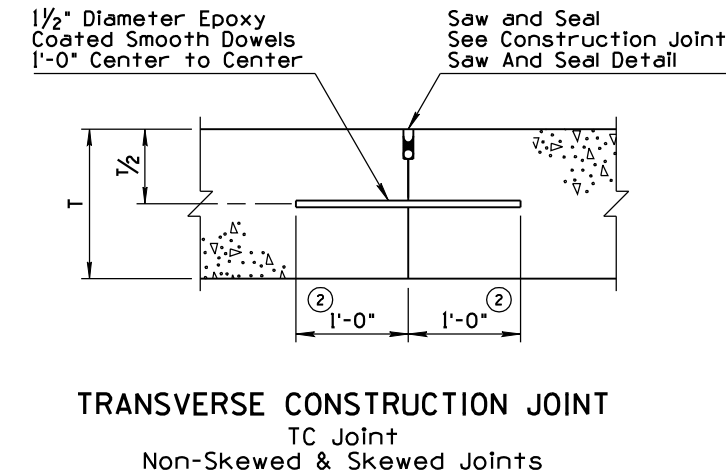
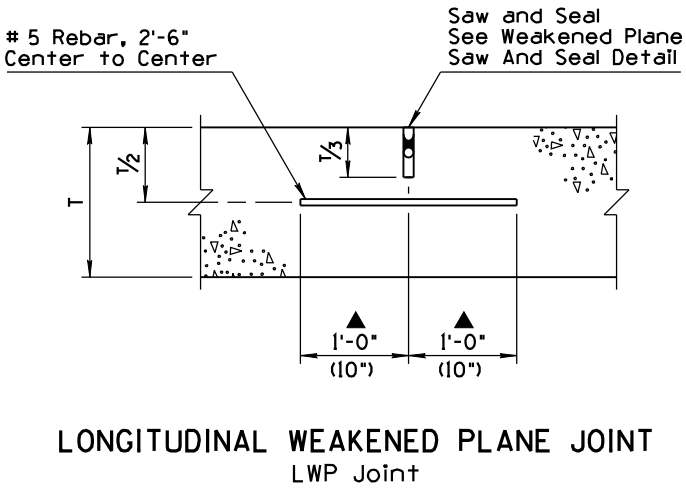
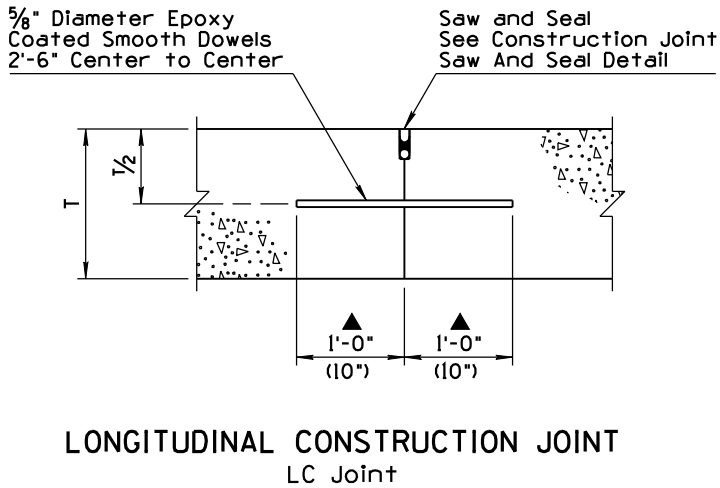
RURAL CROSS SECTION  
(UP GRADE)



RURAL CROSS SECTION  
(DOWN GRADE)

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 8/98
APPROVED FOR DISTRIBUTION <i>Julia [signature]</i>	DRIVEWAY & TURNOUT LAYOUTS	DRAWING NO. C-06.10 Sheet 2 of 2

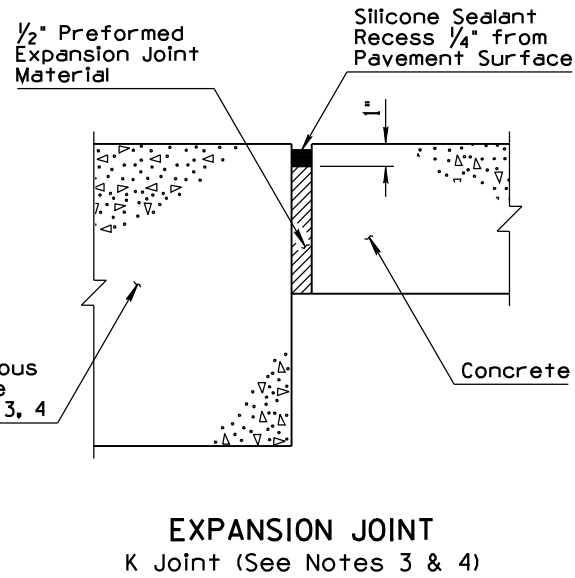
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1	ADDED DEFINITION FOR 'PE'	RLF	9/04
2	REVISED DIMENSION FORMAT	RLF	7/05
3	REMOVED 'INITIAL SAWCUT' NOTATION	RLF	7/05
4			



- GENERAL NOTES**
1. When load transfer dowel assemblies are required, use dimensions shown in ( )'s. See Assembly Placement And Edge Clearance Detail, Std Dwg C-07.02.
  2. In slip form type pavement construction, LWP joints shall be used. In fixed form construction either LWP or LC joints may be used.
  3. K joints shall be constructed around the complete perimeter of miscellaneous structures, or as directed by the Engineer.
  4. Miscellaneous structures include, but are not limited to, catch basins, sign structure foundations, piers, abutments, barrier transitions, slotted drains and other concrete facilities, constructed within the right-of-way.

**JOINT ABBREVIATIONS**

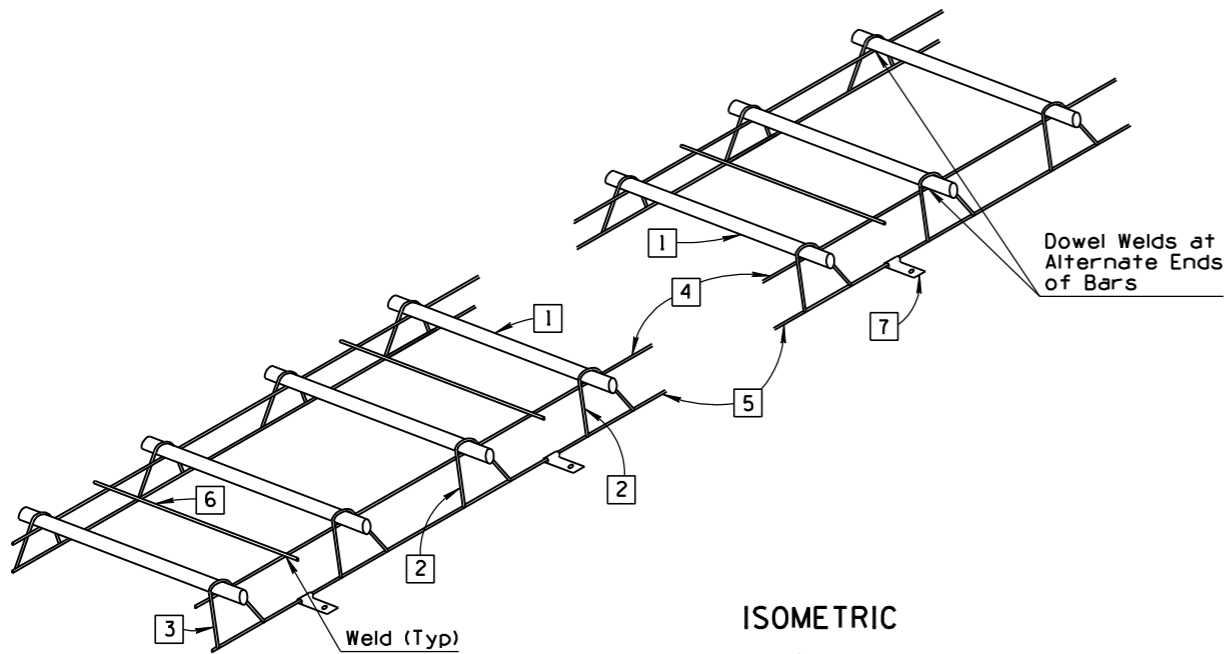
LWP	- Longitudinal Weakened Plane Joint
TWP	- Transverse Weakened Plane Joint
LC	- Longitudinal Construction Joint
TC	- Transverse Construction Joint
E, H, K	- Expansion Joints
S	- AC/PCCP Edge Seal Joint
T	- PCCP Thickness
① PE	- Polyethylene



APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	PCCP JOINTS	DRAWING NO. C-07.01 Sheet 1 of 2

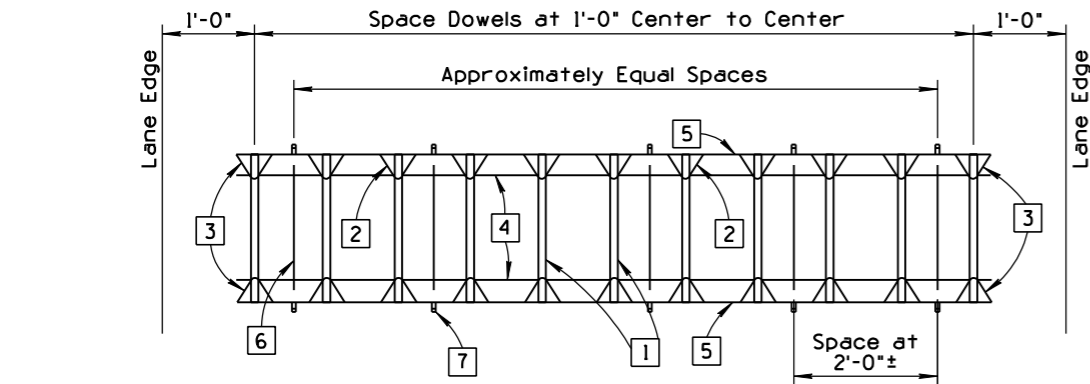


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1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2	CHANGED REFERENCE TO C-07.04	RLF	4/06
3	REVISED TITLE	RLF	4/06
4	REVISED GENERAL NOTE 1	RLF	11/06



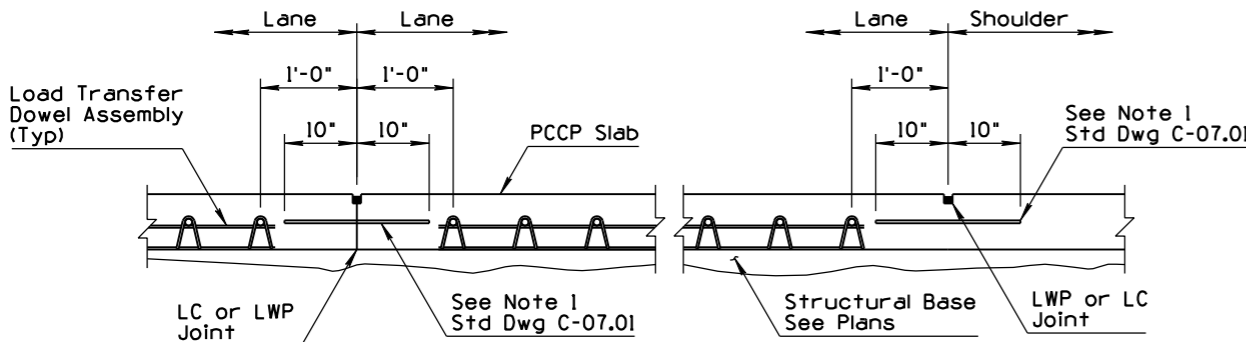
ISOMETRIC

③



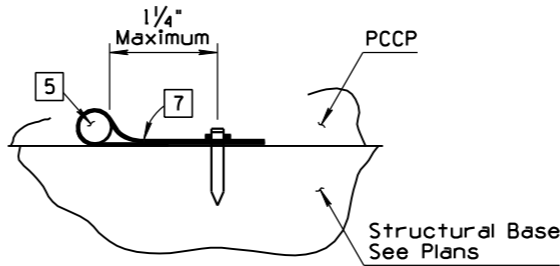
PLAN

③

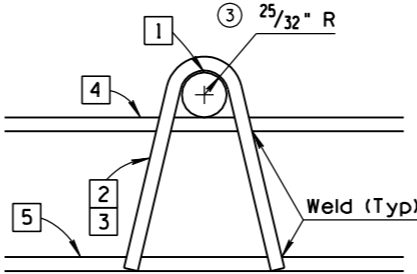


PLACEMENT AND EDGE CLEARANCE DETAIL

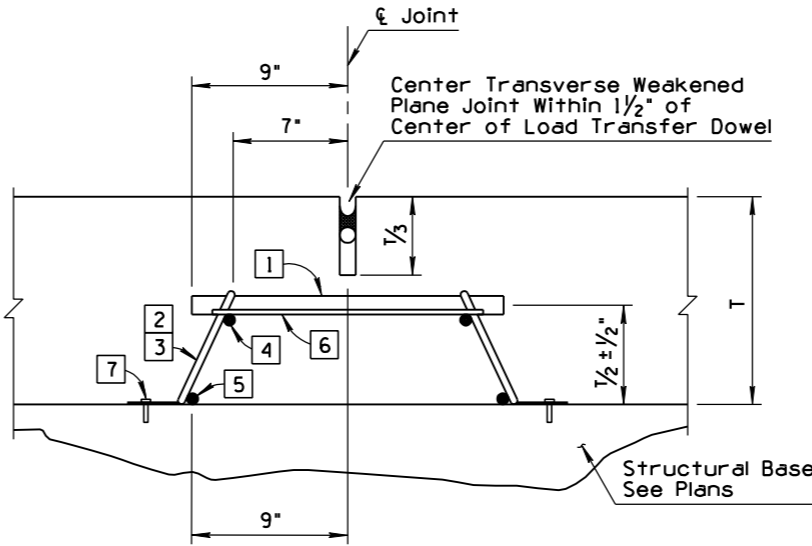
③



ANCHOR STRAP DETAIL



END AND INTERMEDIATE LEG DETAIL



TRANSVERSE WEAKENED-PLANE JOINT WITH  
LOAD TRANSFER DOWEL ASSEMBLY

①

	Lane Width (Ft)		
	12	14	16
(Ft-In)	10-4	12-4	14-4

GENERAL NOTES

1. Load transfer dowel assemblies shall be used with non-skewed, mainline PCCP joints.
2. Load transfer dowel assemblies are to be placed at each transverse weakened plane joint on the traveled lanes as shown on the plans.
3. See Std Dwgs C-07.01 through C-07.04 for additional information.
4. See plans or Std Dwgs C-07.03 through C-07.04 for transverse joint spacing.
5. See plans for pavement thickness less than 12" or greater than 14".

Load transfer dowel assembly shall be assembled from the following materials:  
(See Quantity Table)

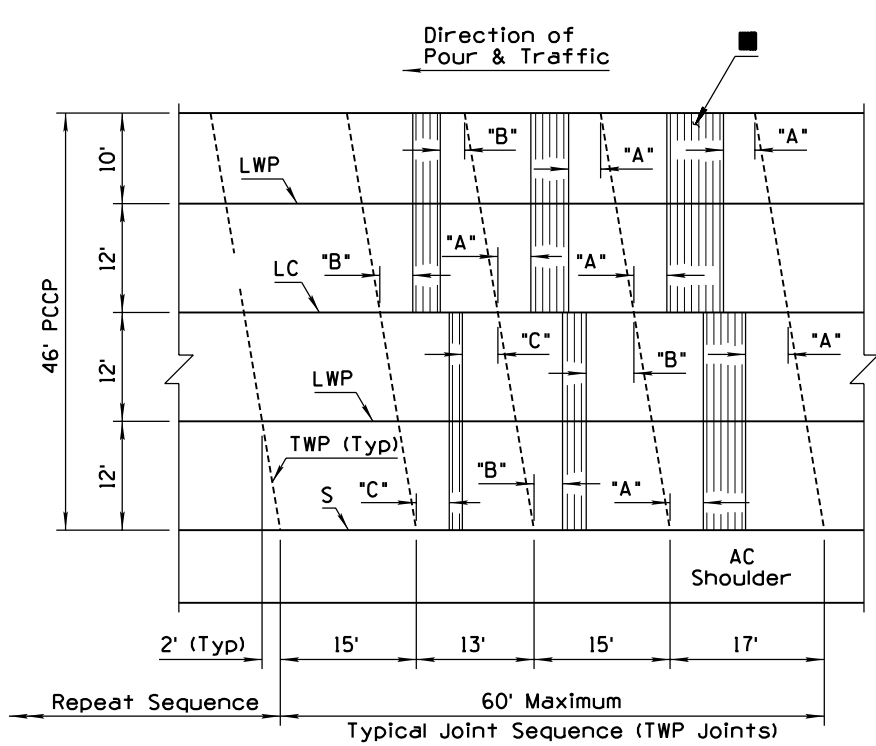
- 1 Dowel bars - 1/2" diameter x 1'-6" plain round bars with coating. See Special Provisions.
- 2 Intermediate legs - 2 gauge or W-5.5 wire.
- 3 End legs - 2 gauge or W-5.5 wire.
- 4 Upper space bar - 2 gauge or W-5.5 wire x 1/2". (See Dimension Table)
- 5 Lower space bar - 2 gauge or W-5.5 wire x 1/2". (See Dimension Table)
- 6 Tie bars - W-1.5 wire x 16".
- 7 Anchor strap - 1"x3" steel strap, 0.079 thick. Place with a 1/2" minimum length steel nail for LCB, 4" minimum length steel nail for ACB or AB, 0.145 diameter ASTM A227 Class 1 with 1/4" head or washer.

①

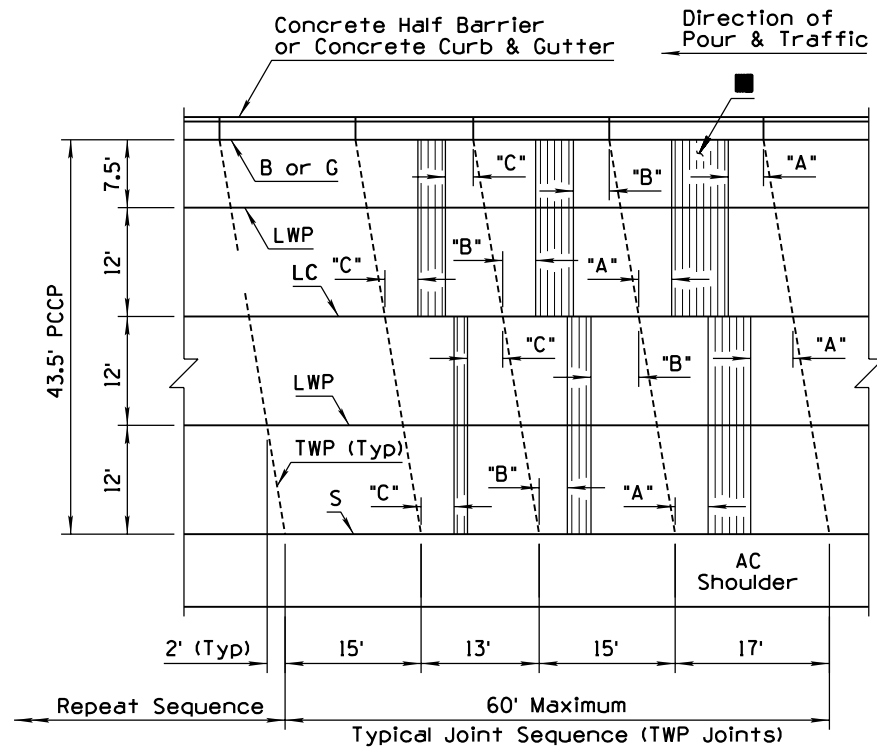
Item No	Lane Width (Ft)		
	12	14	16
1	11	13	15
2	18	22	26
3	4	4	4
4	2	2	2
5	2	2	2
6	5	6	7
7	10	12	14

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 11/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	LOAD TRANSFER DOWEL ASSEMBLY	DRAWING NO. C-07.02

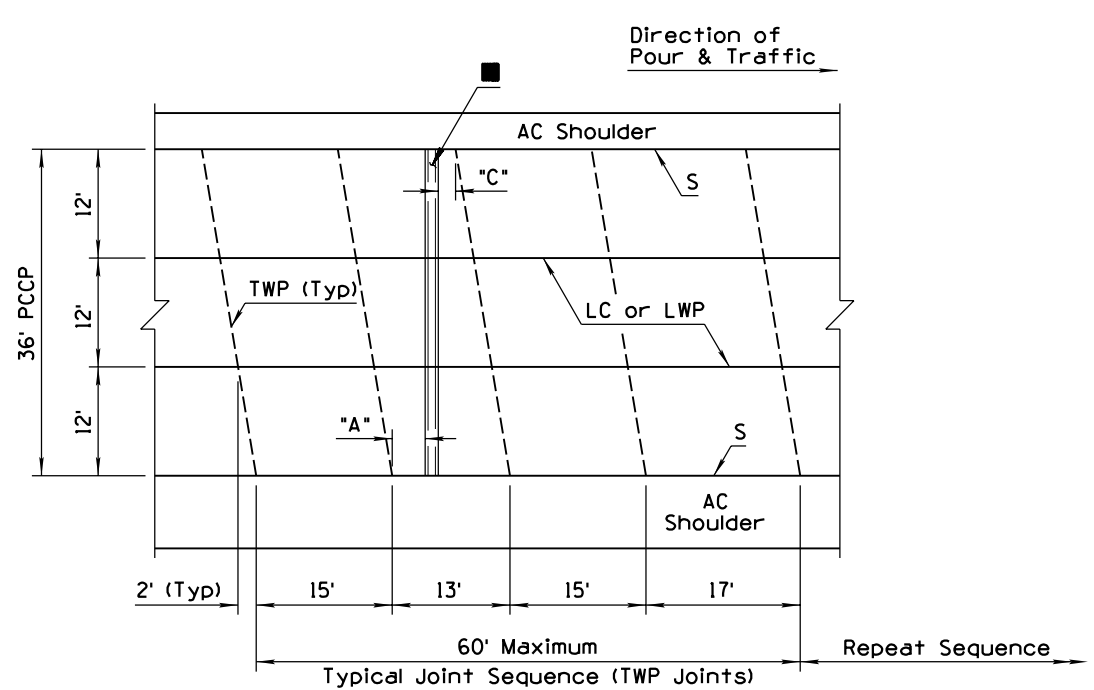
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN  
46' PCCP



PLAN ②  
43.5' PCCP

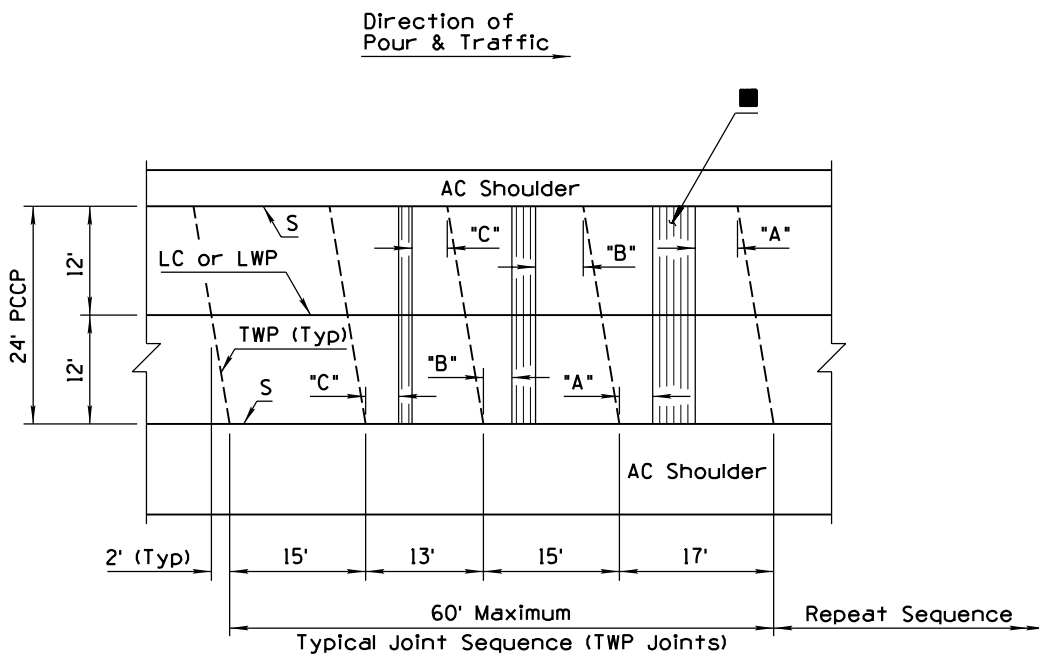


PLAN  
36' PCCP

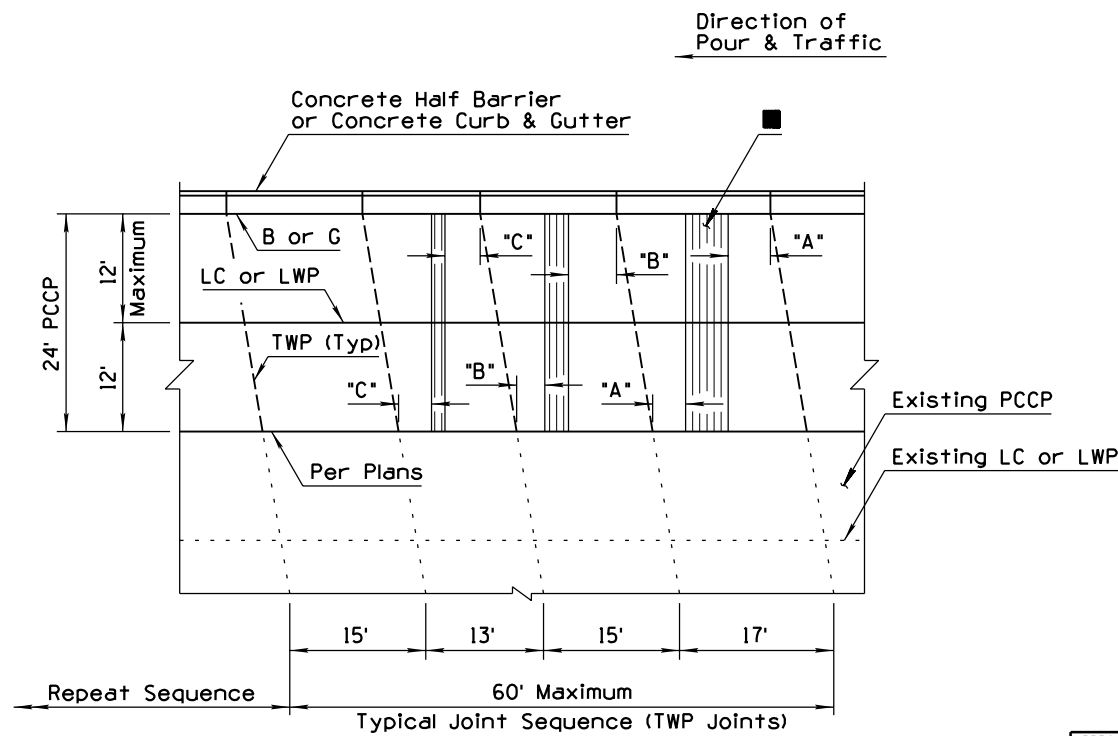
#### GENERAL NOTES

1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
3. "A" shall equal 4' minimum (Typ)  
"B" shall equal 3' minimum (Typ)  
"C" shall equal 2' minimum (Typ)
4. See Std Dwg C-07.01 for PCCP joints and additional notes.
5. All transverse joints shall align with joints in adjacent slabs.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

■ Transverse Construction Joint (TC) Allowable Limits (Typ)



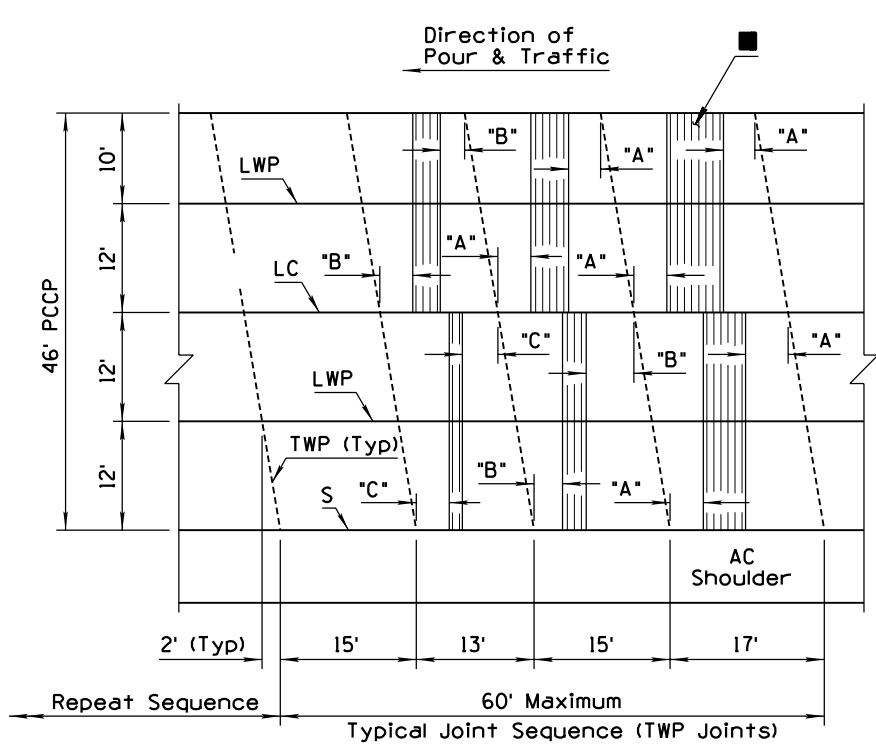
PLAN  
24' PCCP



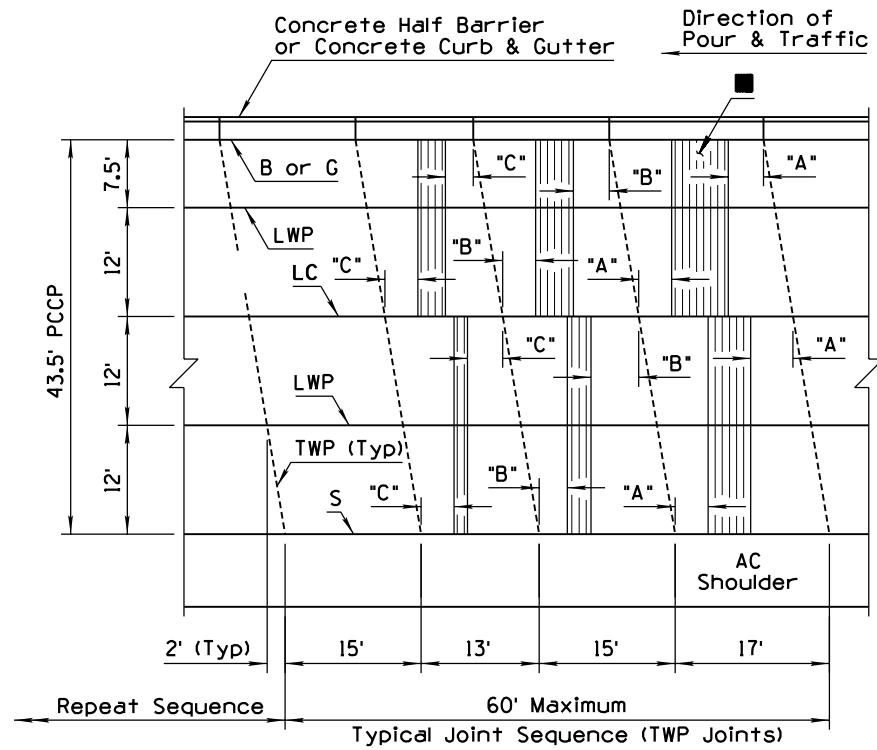
PLAN ②  
24' PCCP  
(WIDENING)

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS ③	DRAWING NO. C-07.03 Sheet 1 of 8

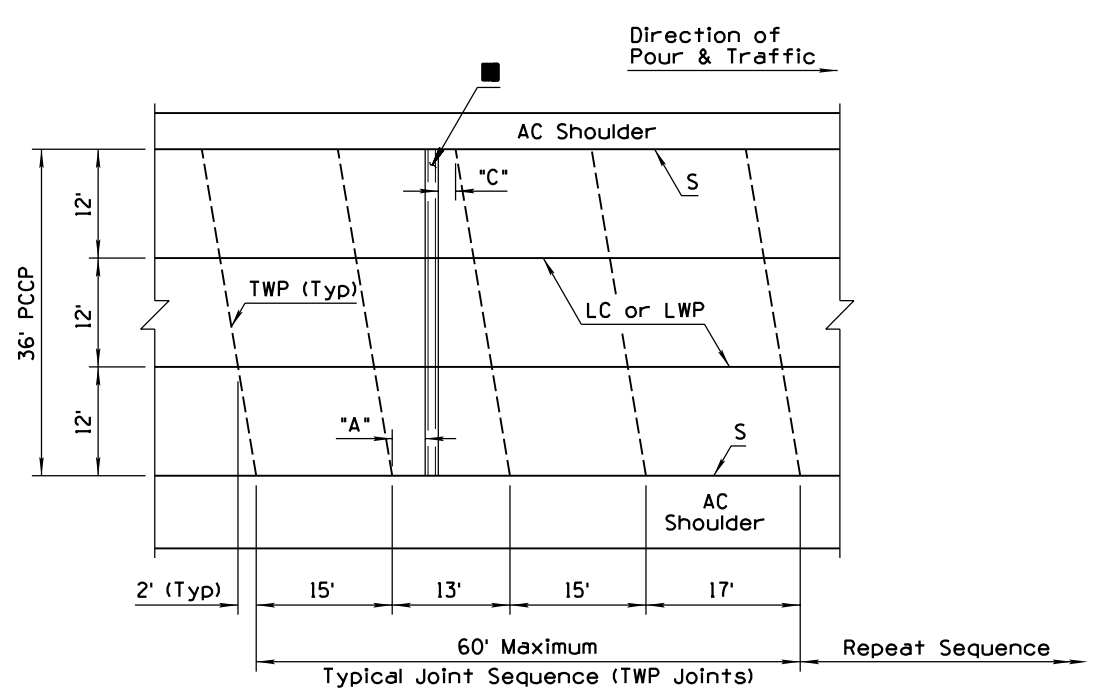
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1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN  
46' PCCP



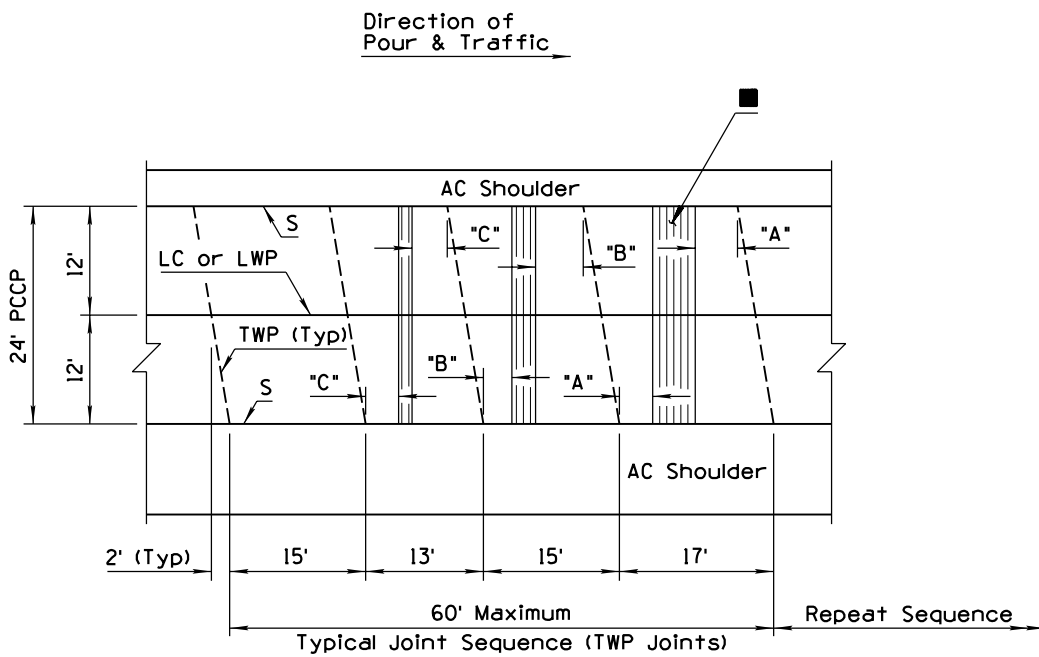
PLAN ②  
43.5' PCCP



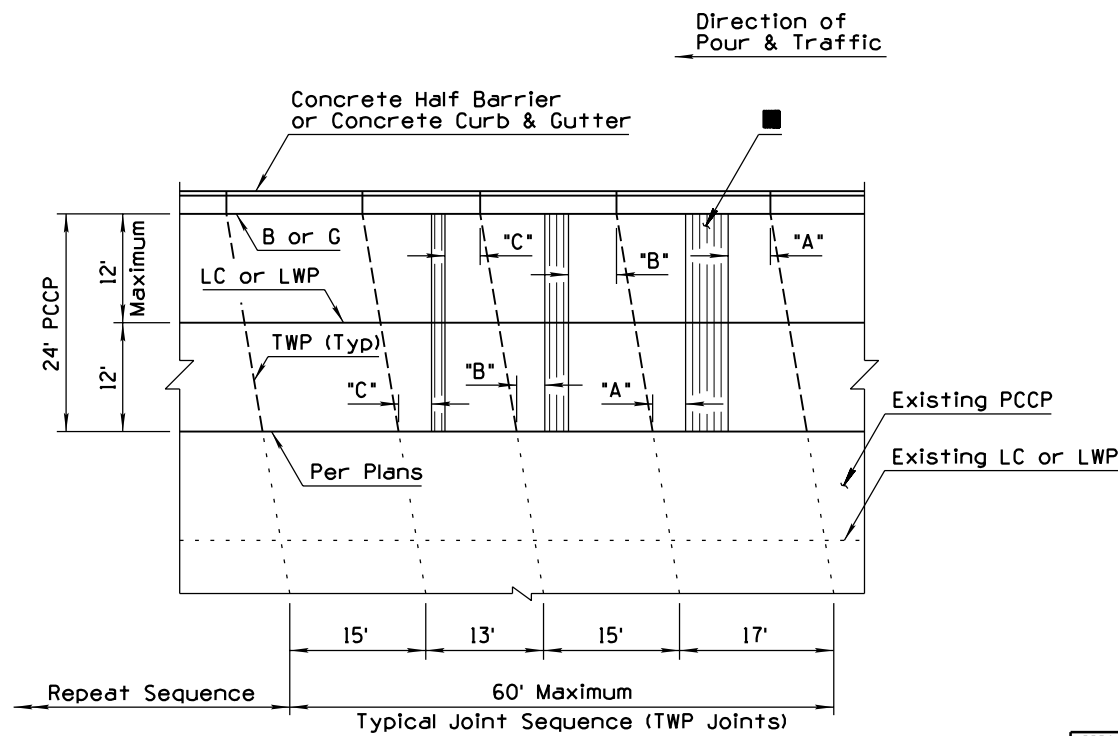
PLAN  
36' PCCP

#### GENERAL NOTES

1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
  2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
  3. "A" shall equal 4' minimum (Typ)  
"B" shall equal 3' minimum (Typ)  
"C" shall equal 2' minimum (Typ)
  4. See Std Dwg C-07.01 for PCCP joints and additional notes.
  5. All transverse joints shall align with joints in adjacent slabs.
  6. See Std Dwg C-05.10 for curb and gutter joint requirements.
  7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
  8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
  - ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)



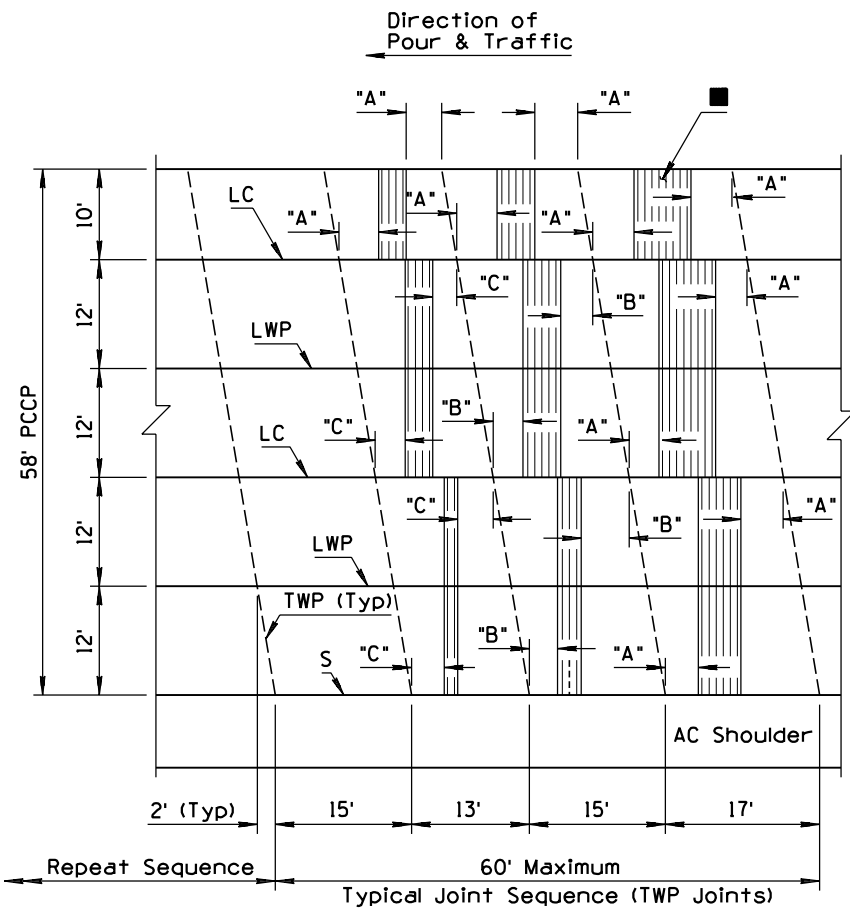
PLAN  
24' PCCP



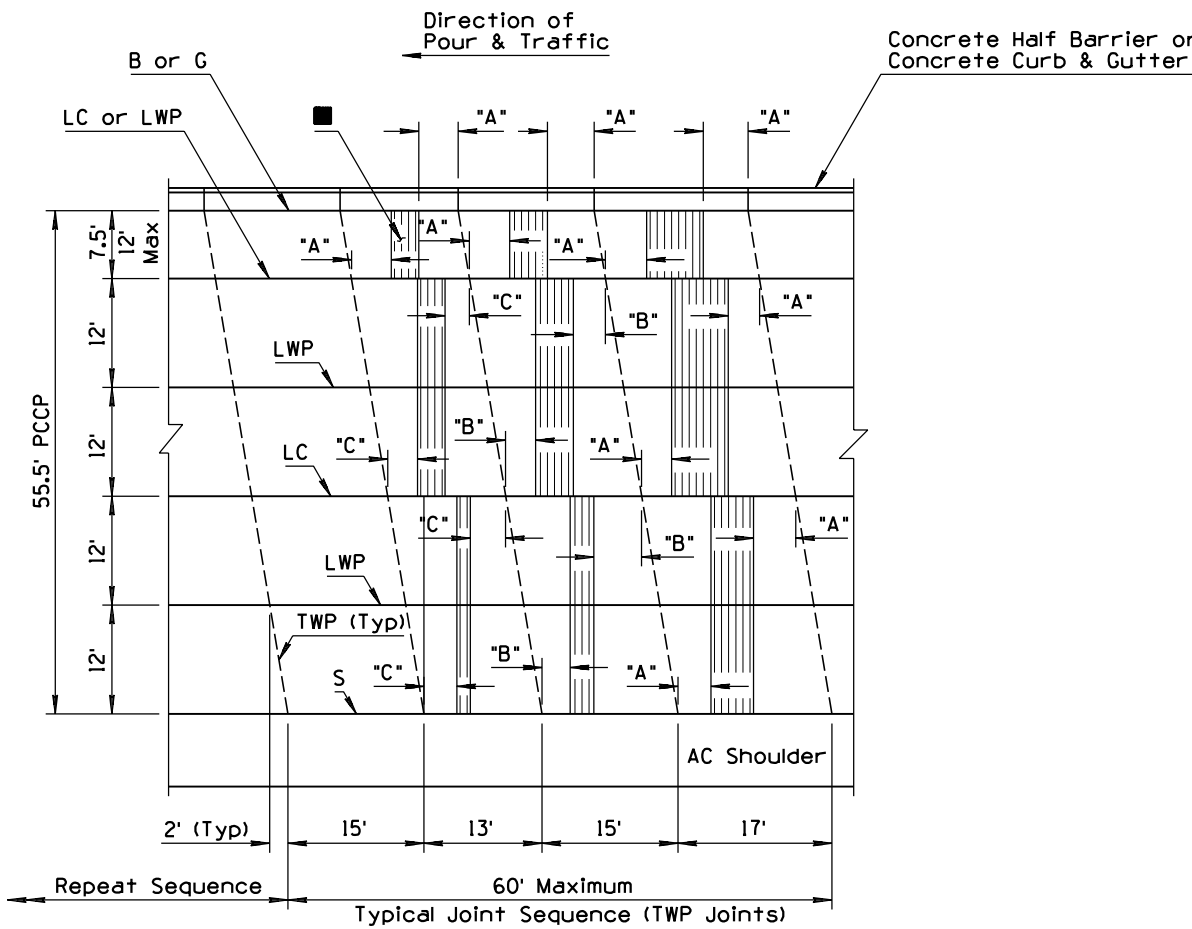
PLAN ②  
24' PCCP  
(WIDENING)

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS ③	DRAWING NO. C-07.03 Sheet 1 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN  
58' PCCP



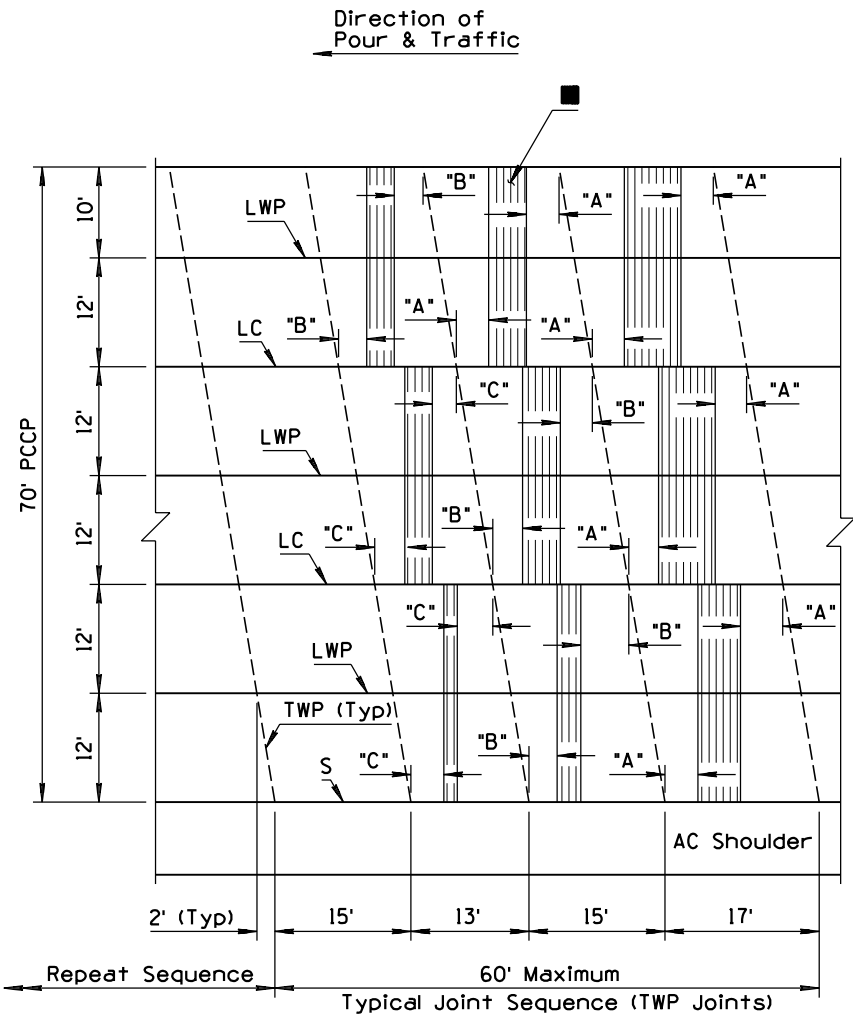
PLAN  
55.5' PCCP

GENERAL NOTES

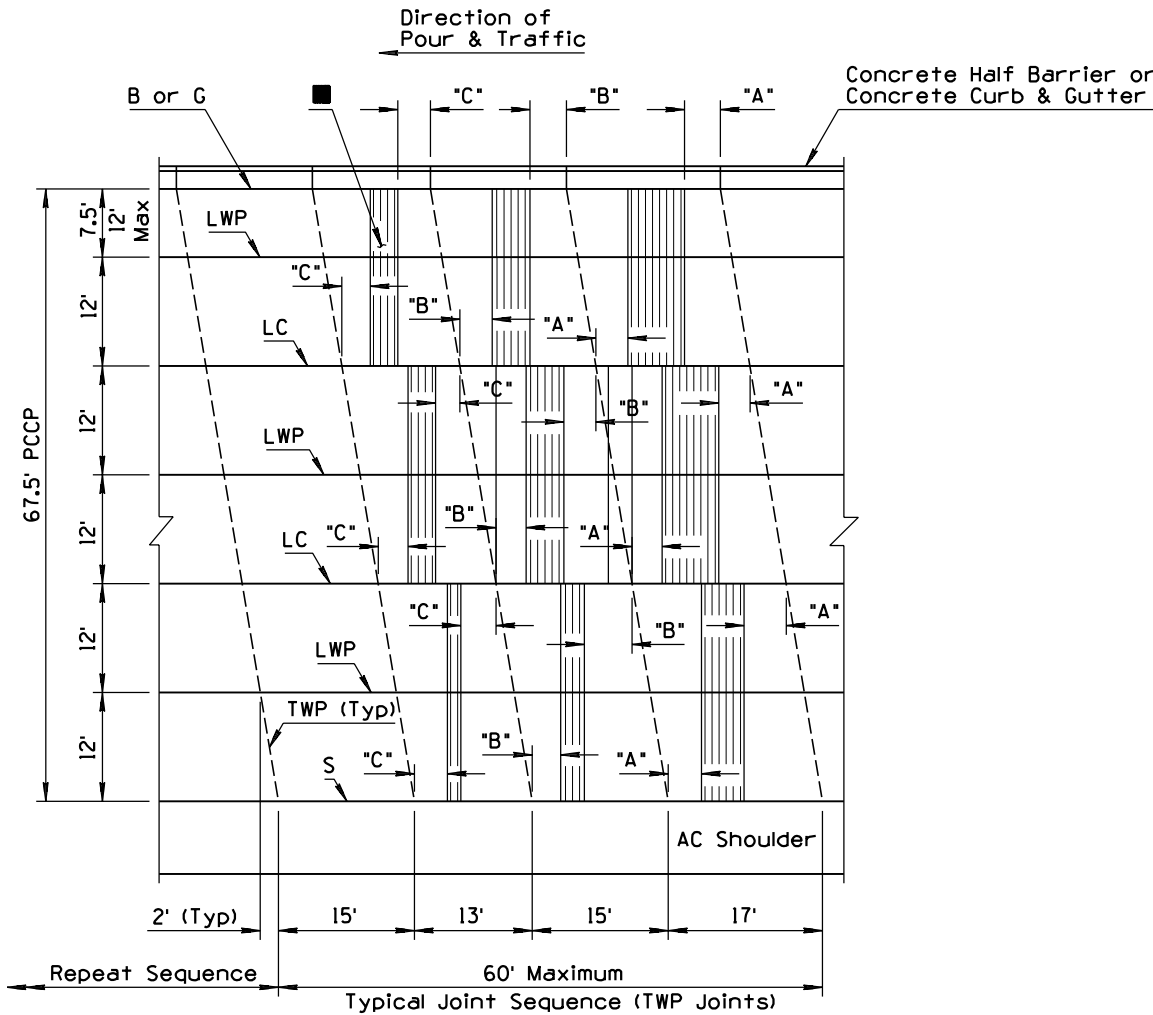
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
  2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
  3. "A" shall equal 4' minimum (Typ)  
"B" shall equal 3' minimum (Typ)  
"C" shall equal 2' minimum (Typ)
  4. See Std Dwg C-07.01 for PCCP joints and additional notes.
  5. All transverse joints shall align with joints in adjacent slabs.
  6. See Std Dwg C-05.10 for curb and gutter joint requirements.
  7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
  8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
  9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)

APPROVED FOR DESIGN <i>May Viana</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	DRAWING NO. C-07.03 Sheet 2 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN  
70' PCCP



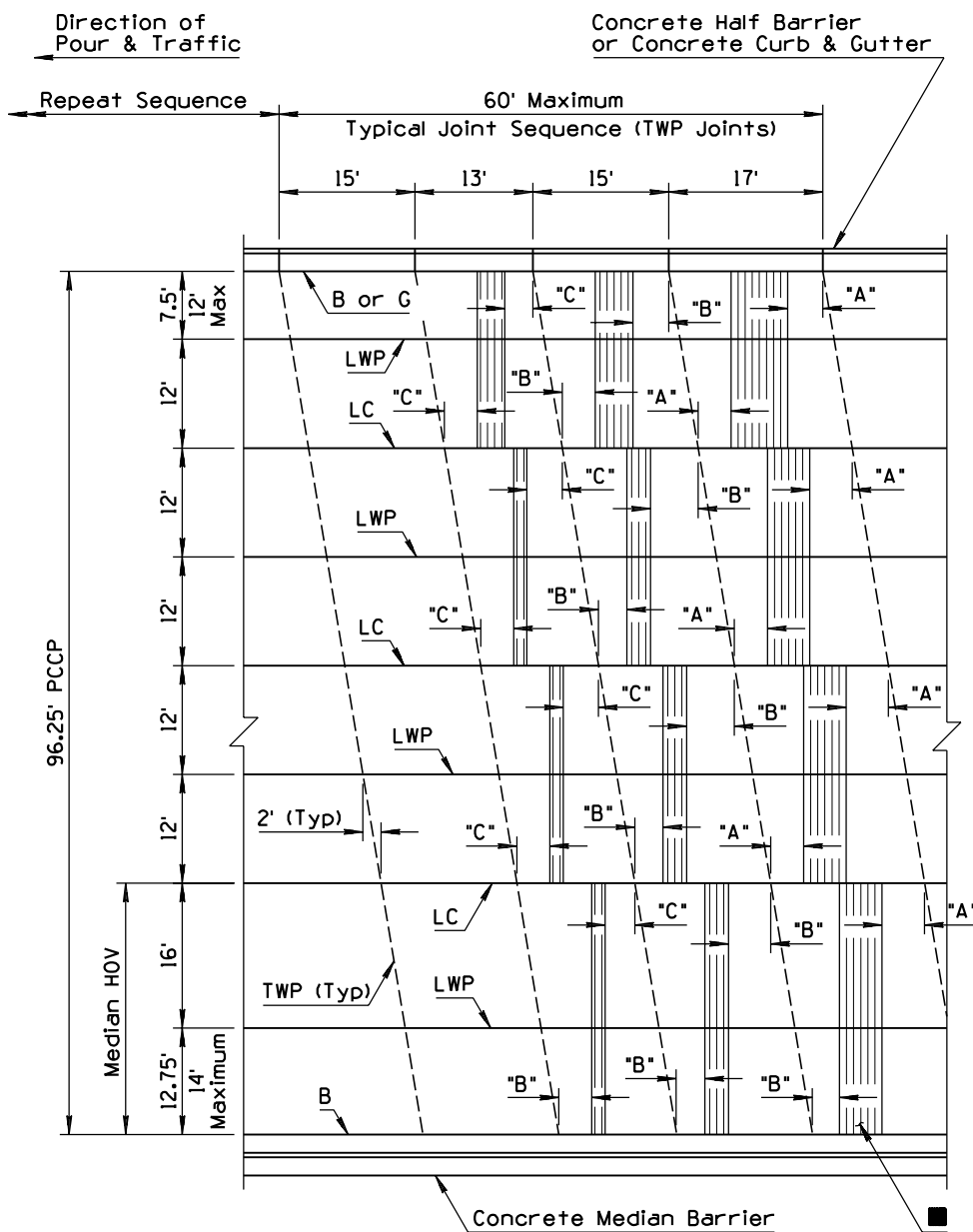
PLAN  
67.5' PCCP

GENERAL NOTES

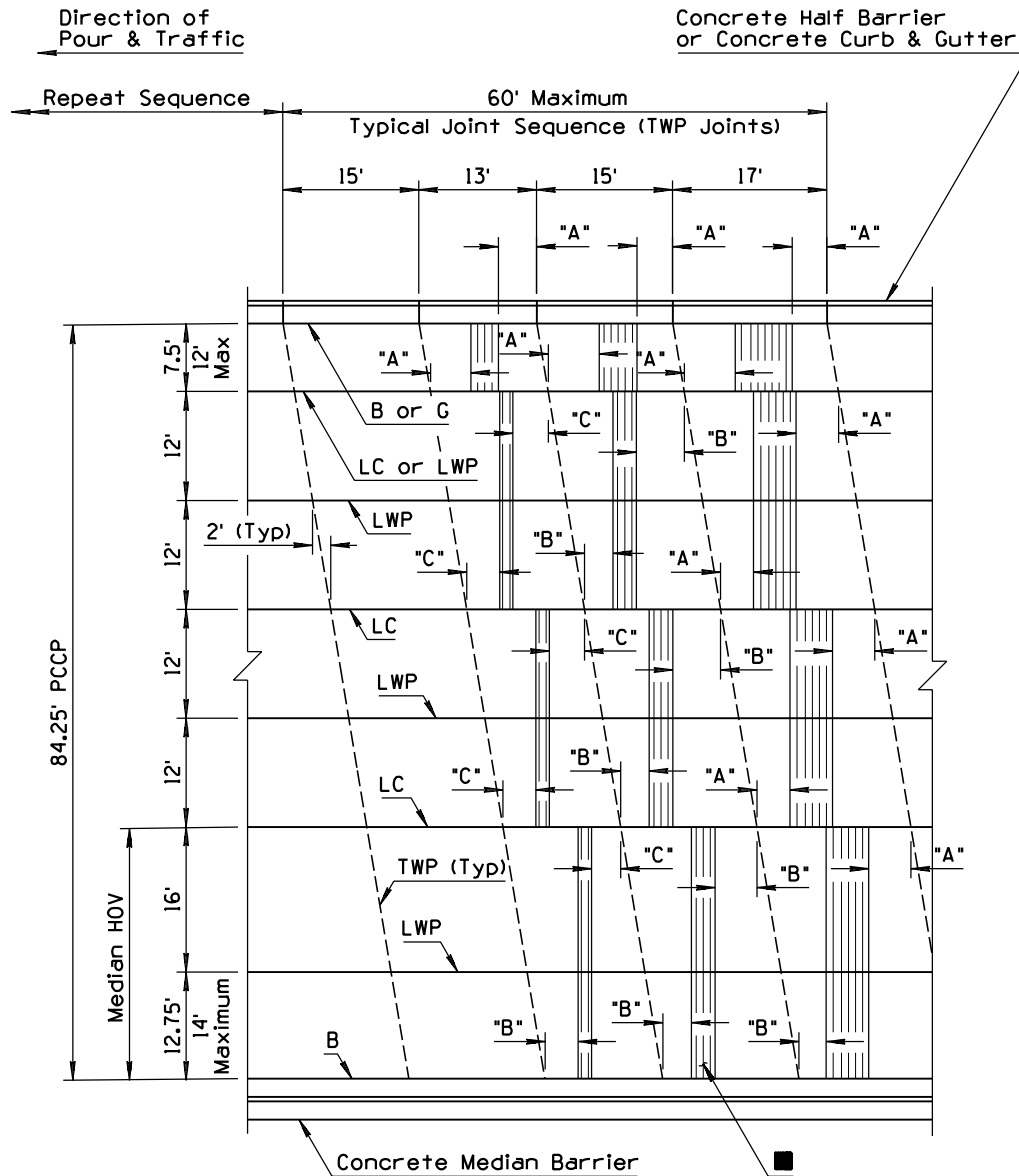
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
  2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
  3. "A" shall equal 4' minimum (Typ)  
"B" shall equal 3' minimum (Typ)  
"C" shall equal 2' minimum (Typ)
  4. See Std Dwg C-07.01 for PCCP joints and additional notes.
  5. All transverse joints shall align with joints in adjacent slabs.
  6. See Std Dwg C-05.10 for curb and gutter joint requirements.
  7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
  8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
  9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transverse Construction Joint (TC) Allowable Limits (Typ)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	DRAWING NO. C-07.03 Sheet 3 of 8

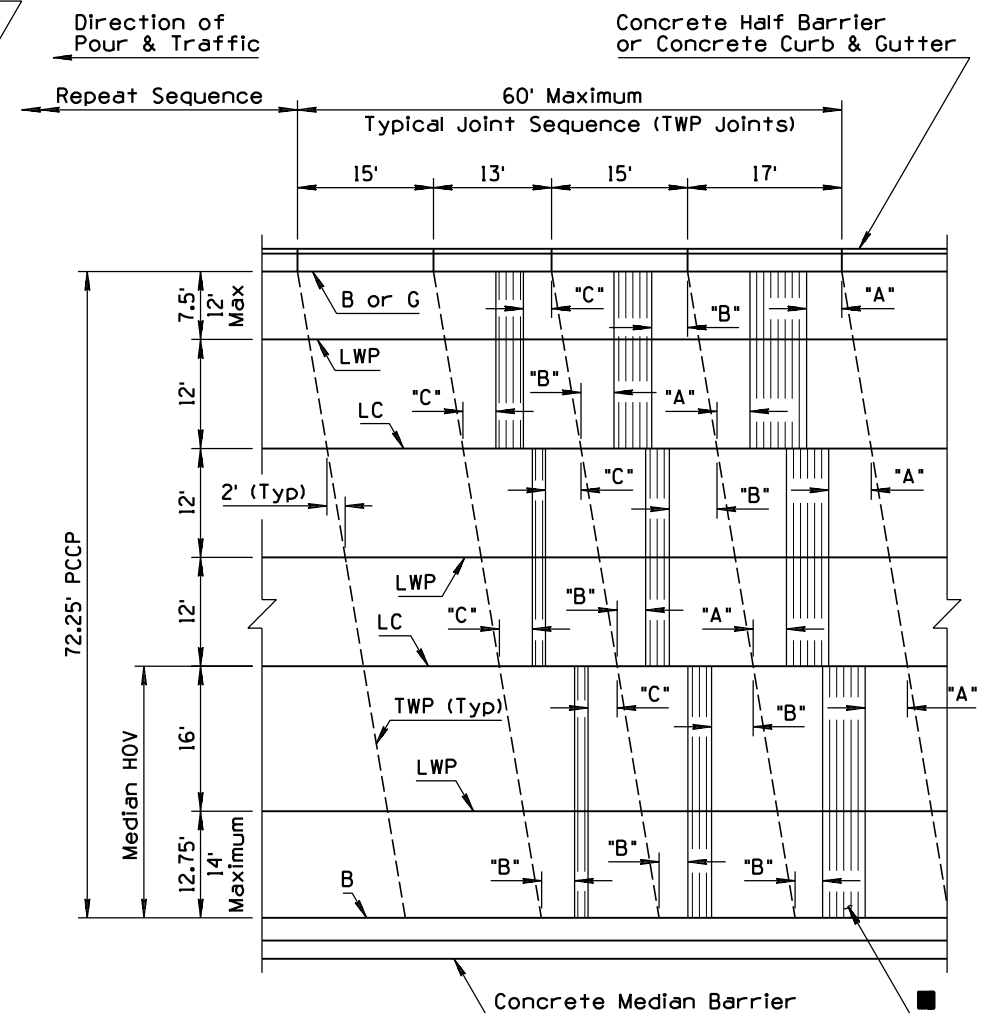
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN ②  
96.25' PCCP



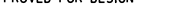

PLAN ②  
84.25' PCCP



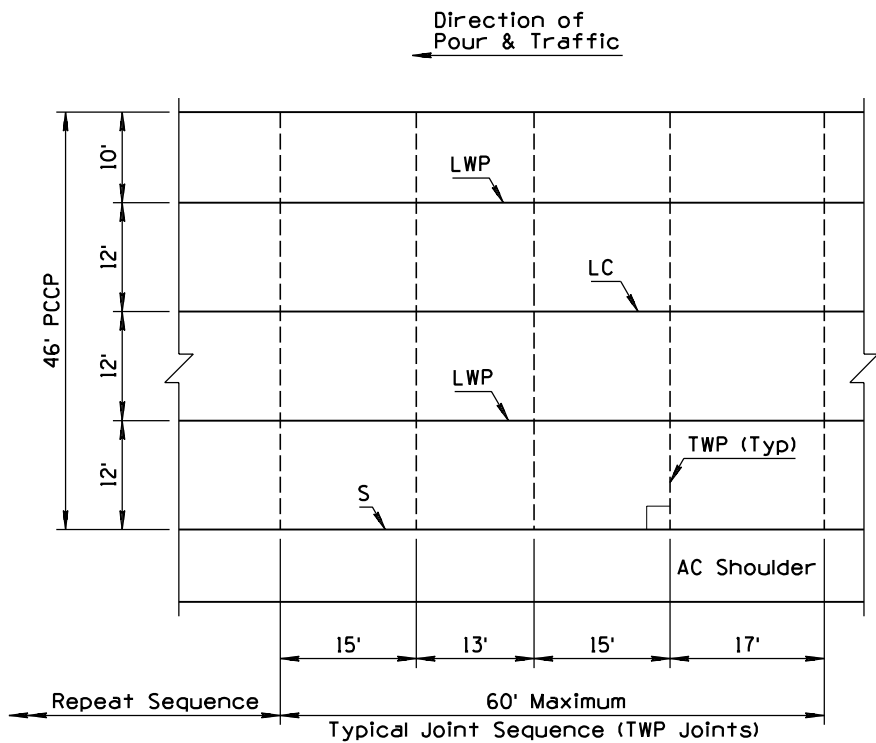
PLAN ②  
72.25' PCCP

## GENERAL NOTES

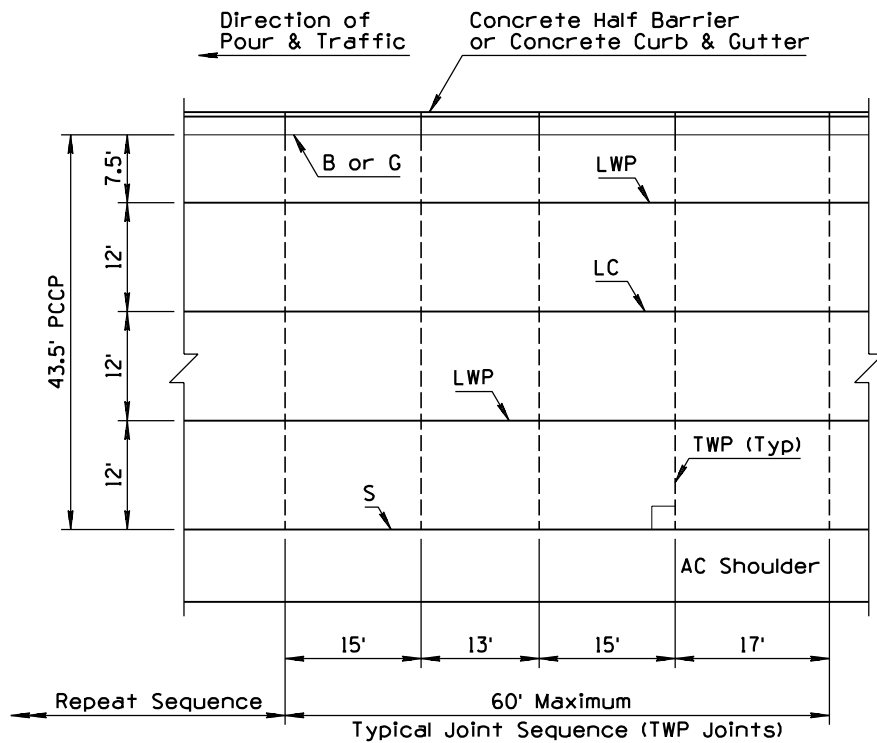
- ① 1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
3. "A" shall equal 4' minimum (Typ)  
"B" shall equal 3' minimum (Typ)  
"C" shall equal 2' minimum (Typ)
4. See Std Dwg C-07.01 for PCCP joints and additional notes.
5. All transverse joints shall align with joints in adjacent slabs.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
- ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

APPROVED FOR DESIGN 	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV.  9/04
APPROVED FOR DISTRIBUTION 	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	DRAWING NO.  C-07.03 Sheet 4 of 8

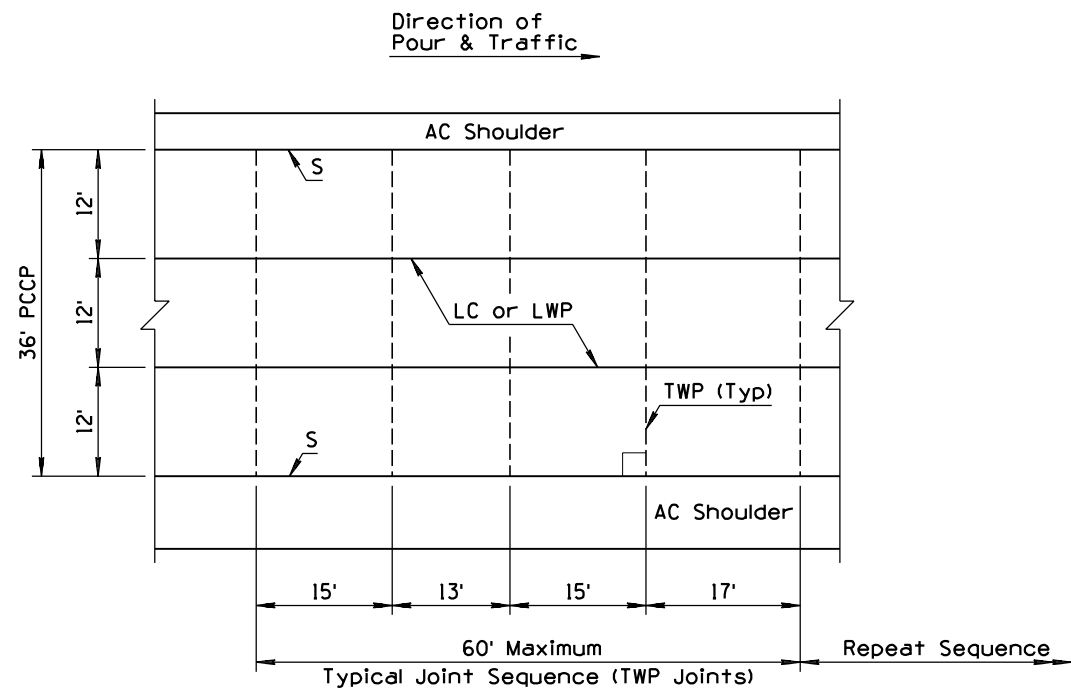
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN  
46' PCCP



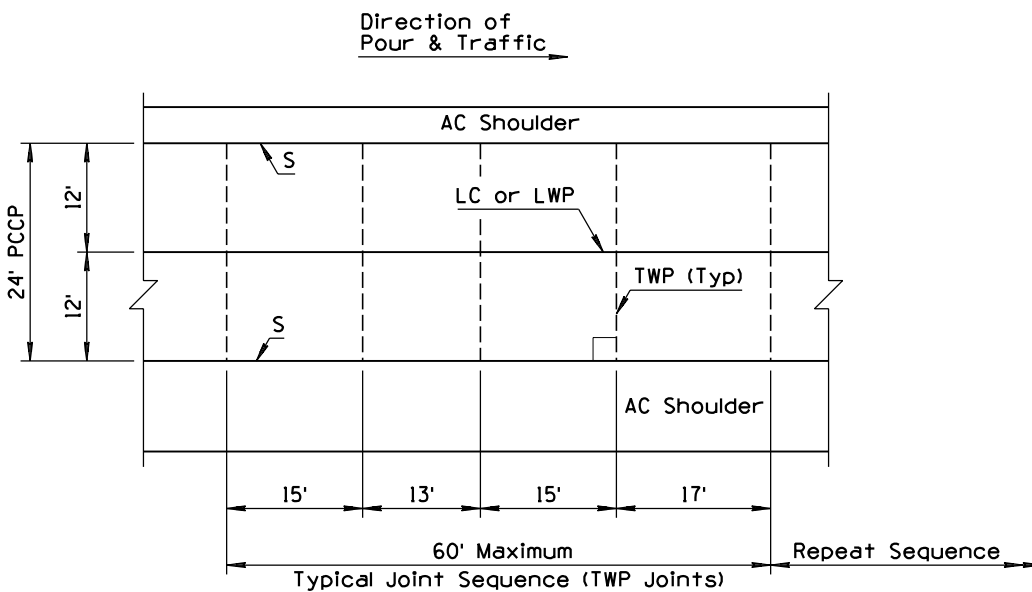
PLAN  
43.5' PCCP



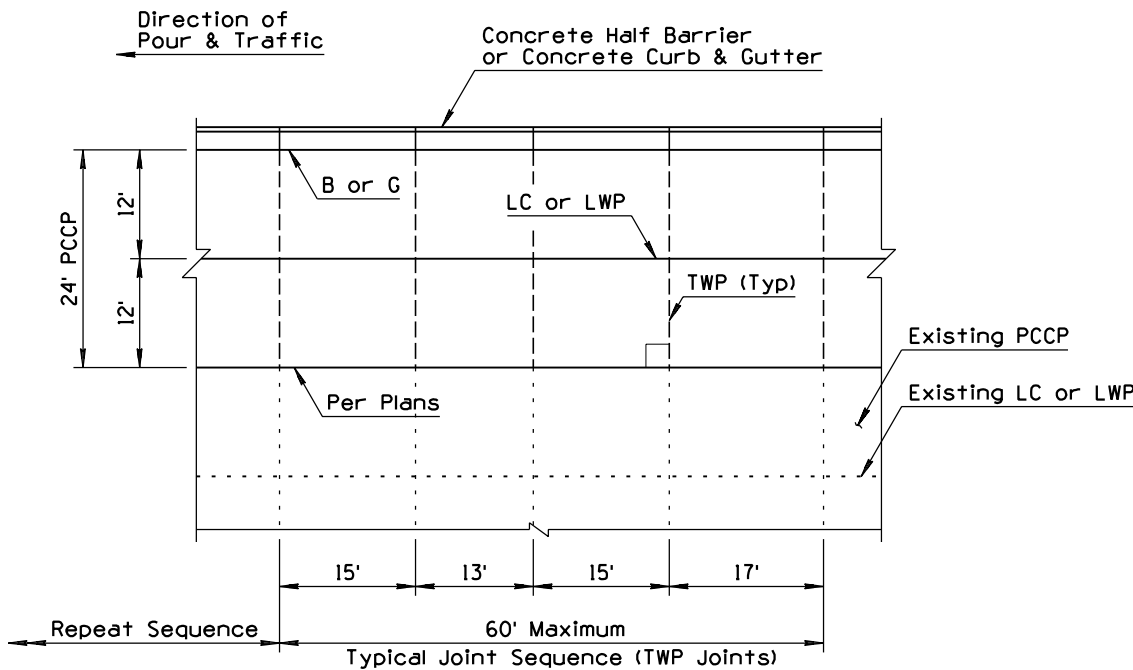
PLAN  
36' PCCP

GENERAL NOTES

1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3. See Std Dwg C-07.01 for PCCP joints and additional notes.
4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



PLAN  
24' PCCP



PLAN  
24' PCCP  
(WIDENING)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 5 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			

GENERAL NOTES

- ①
1.

LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2.

Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3.

See Std Dwg C-07.01 for PCCP joints and additional notes.
4.

All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5.

At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6.

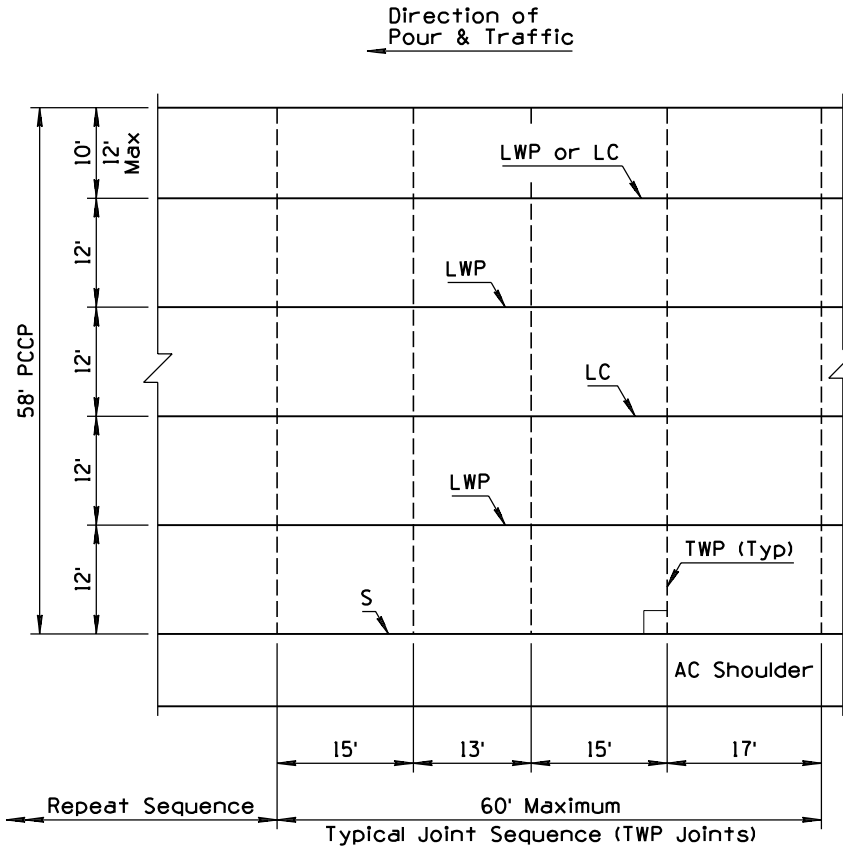
See Std Dwg C-05.10 for curb and gutter joint requirements.
7.

The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8.

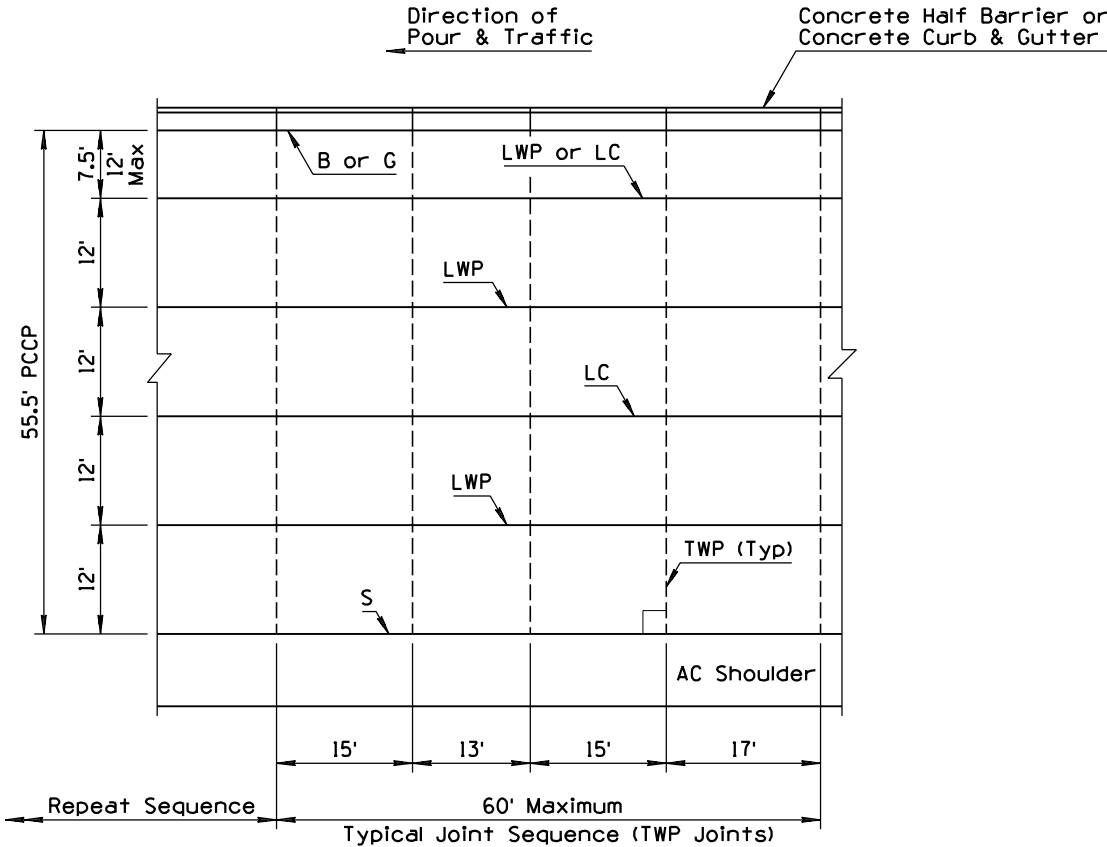
Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
- ①

9.

LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



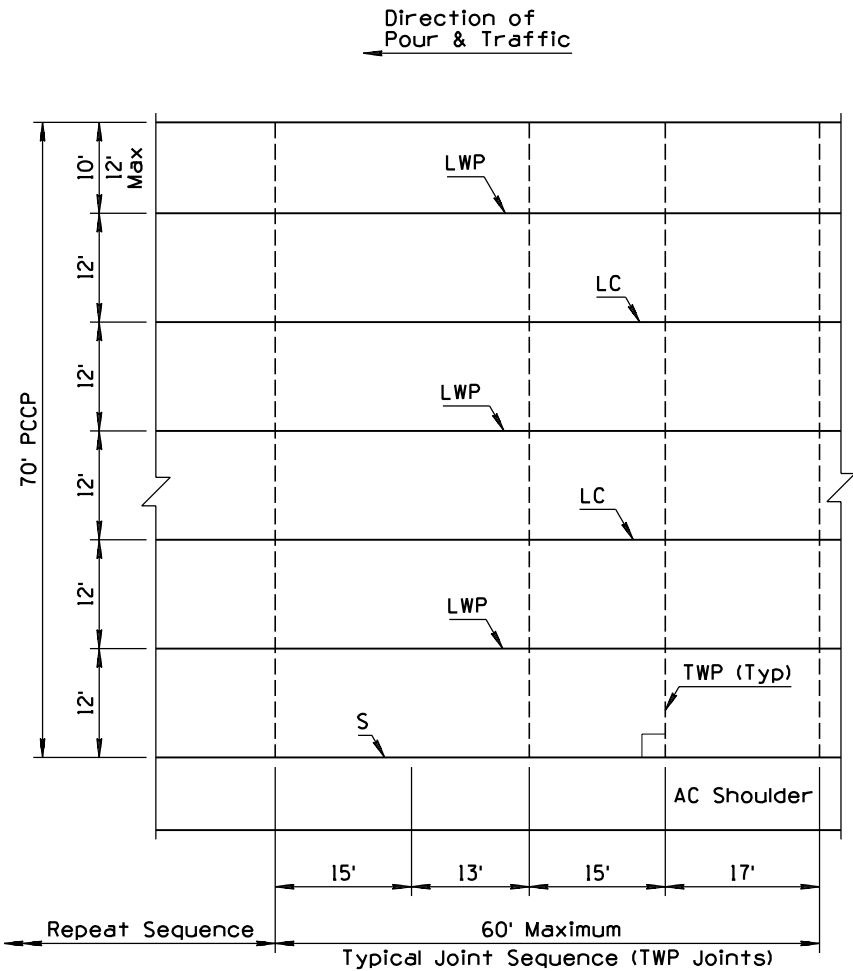
PLAN  
58' PCCP



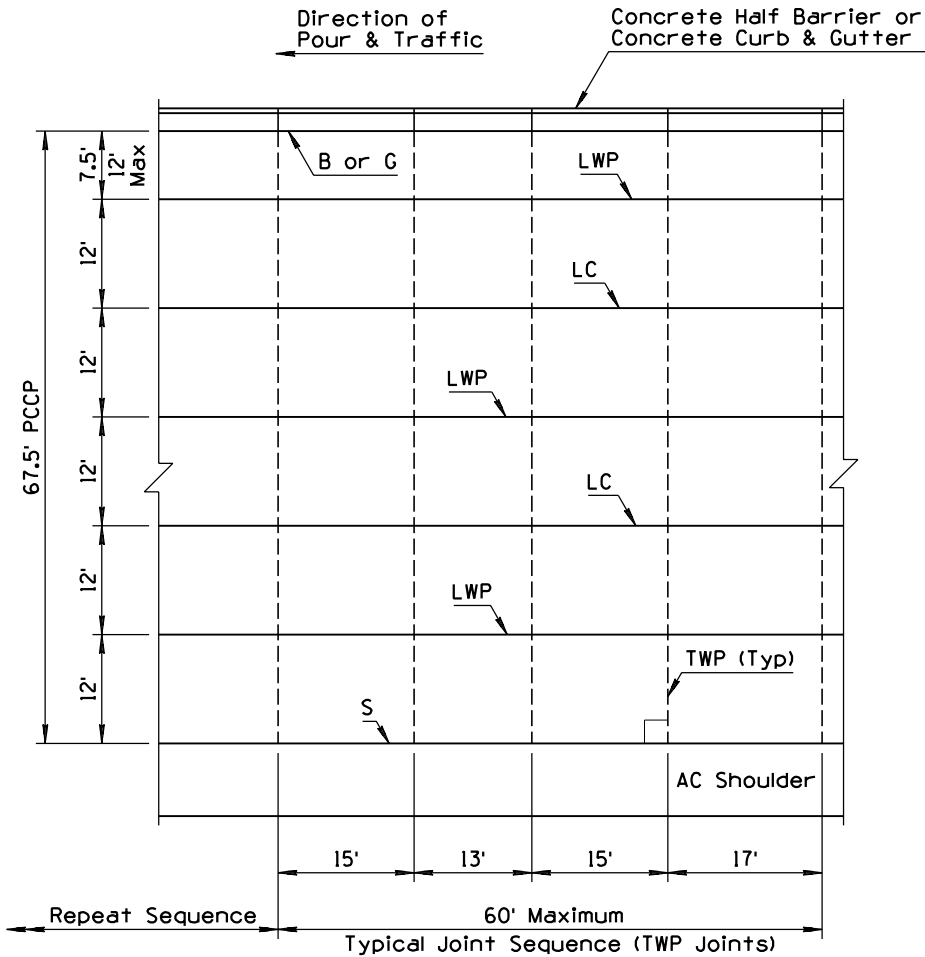
PLAN  
55.5' PCCP

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 6 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN  
70' PCCP



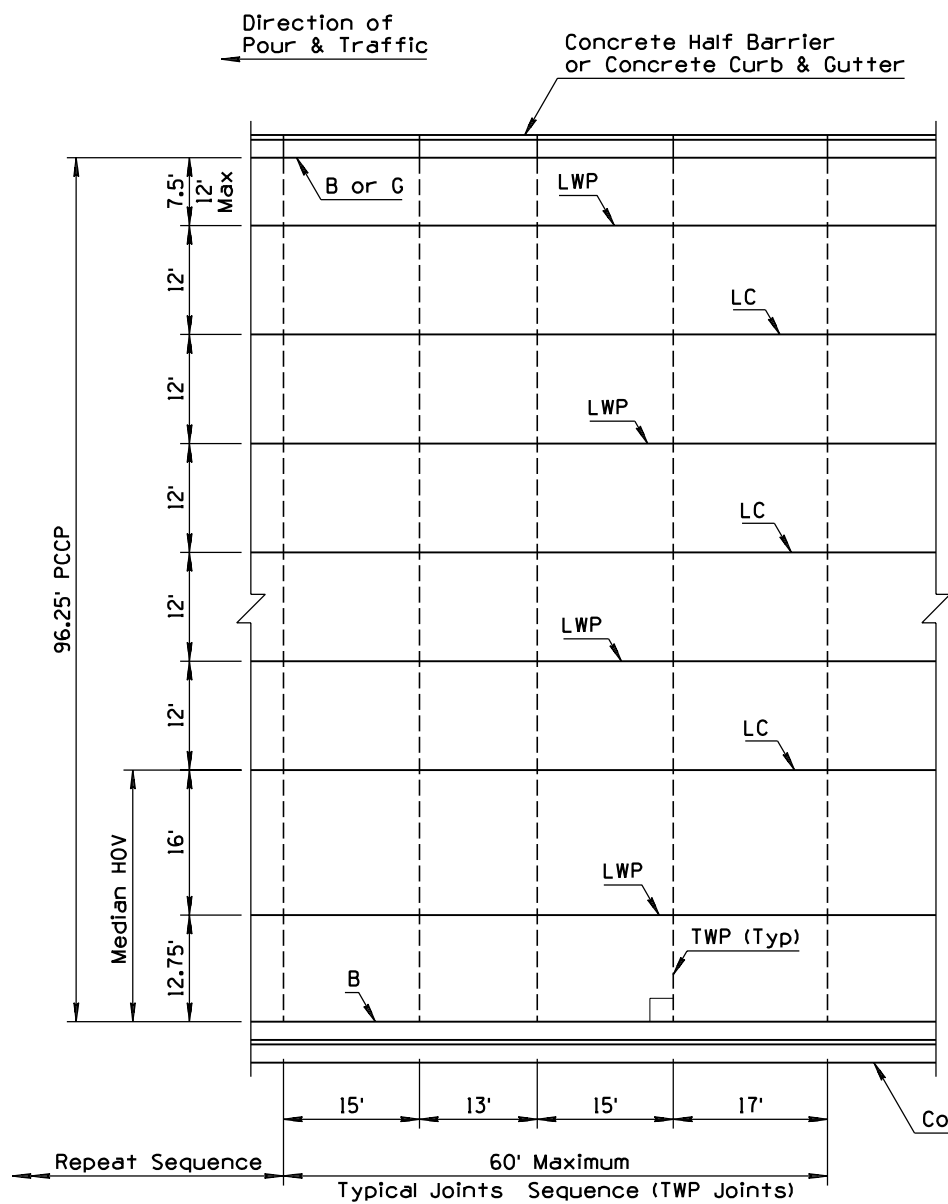
PLAN  
67.5' PCCP

GENERAL NOTES

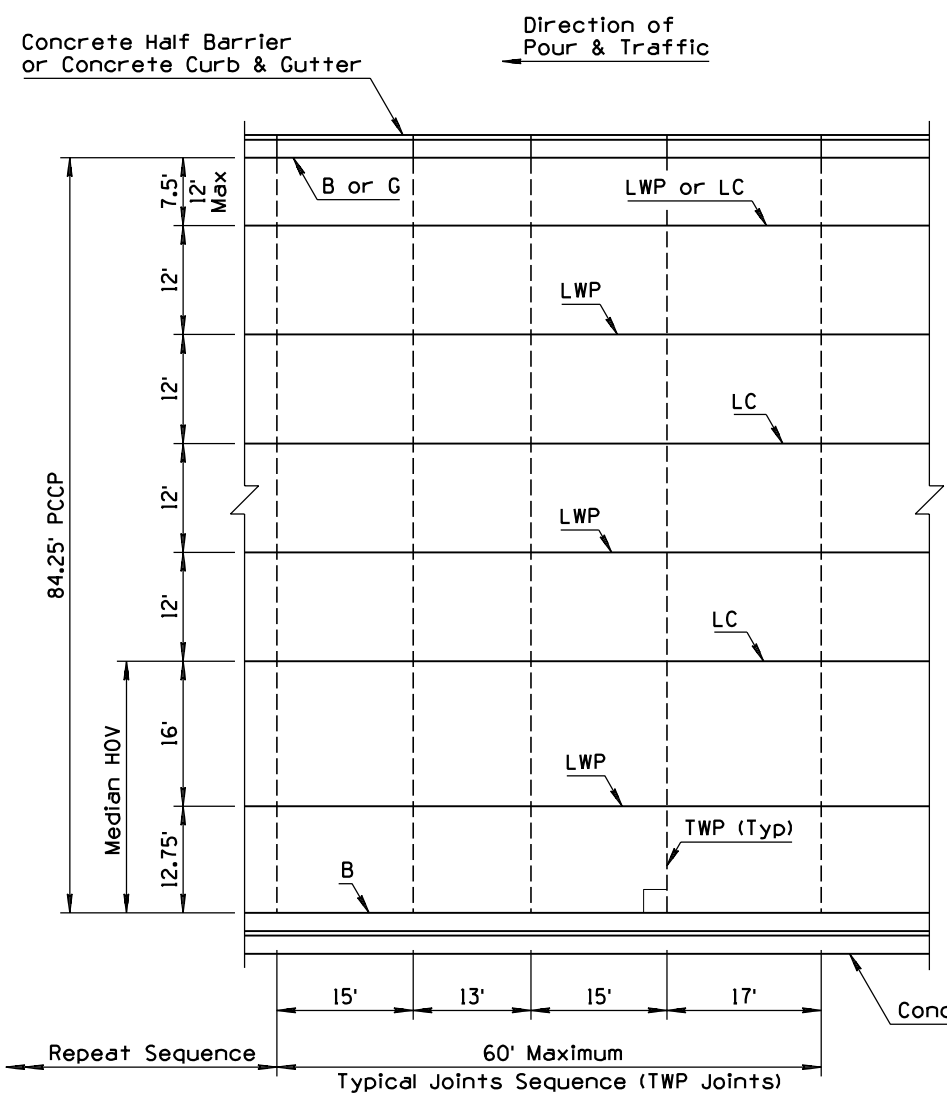
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3. See Std Dwg C-07.01 for PCCP joints and additional notes.
4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 7 of 8

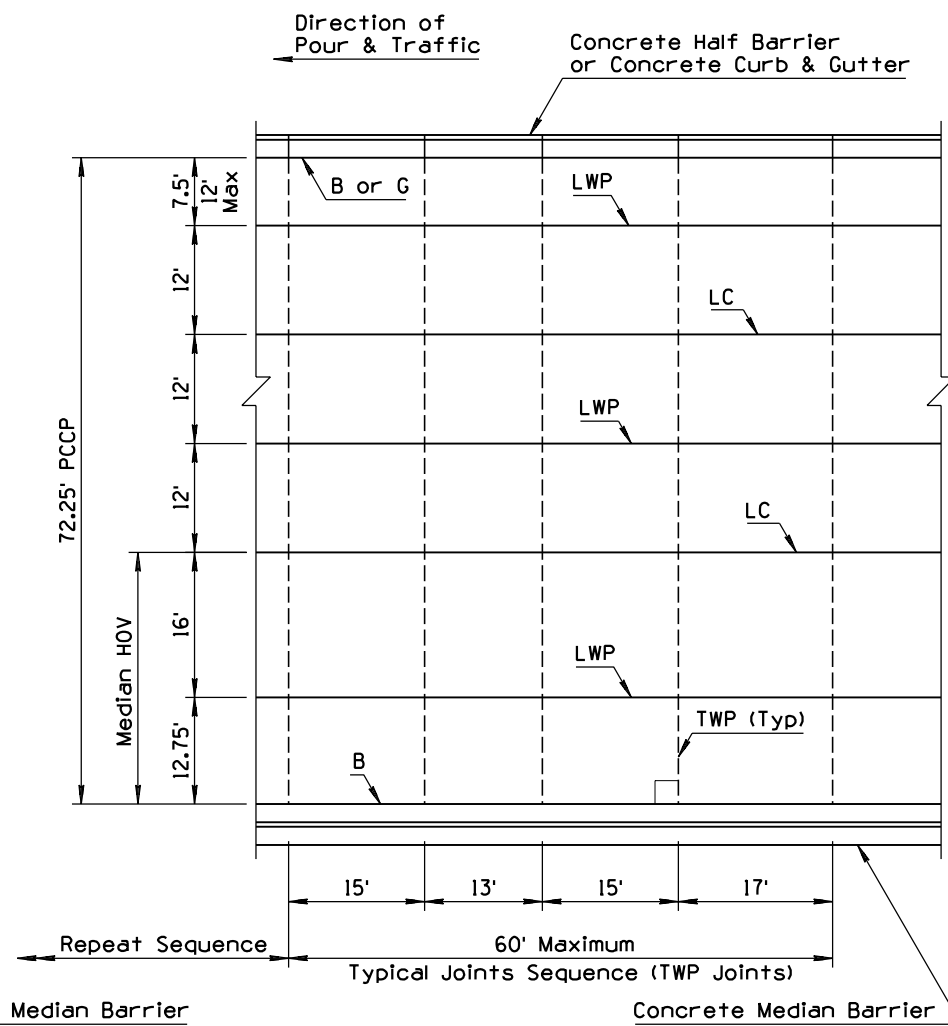
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



PLAN  
96.25' PCCP



PLAN  
84.25' PCCP



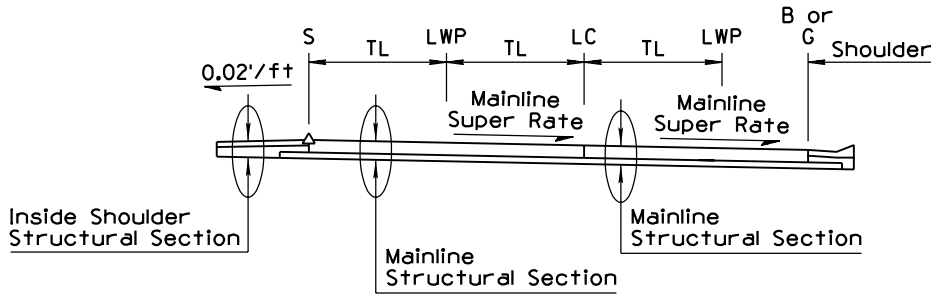
PLAN  
72.25' PCCP

GENERAL NOTES

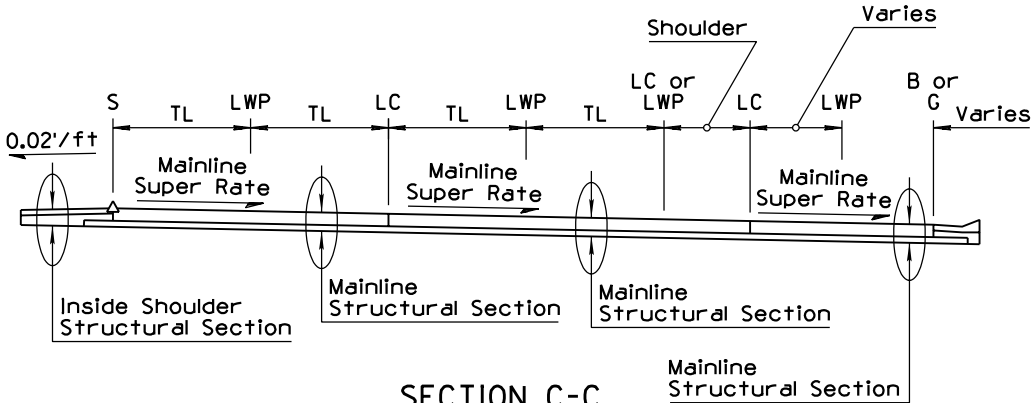
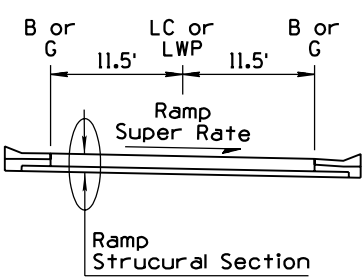
1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
3. See Std Dwg C-07.01 for PCCP joints and additional notes.
4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
6. See Std Dwg C-05.10 for curb and gutter joint requirements.
7. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
8. Transverse weakened plane joint shall be constructed at least 6'-0" from a transverse construction joint.
9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS ②	DRAWING NO. C-07.03 Sheet 8 of 8

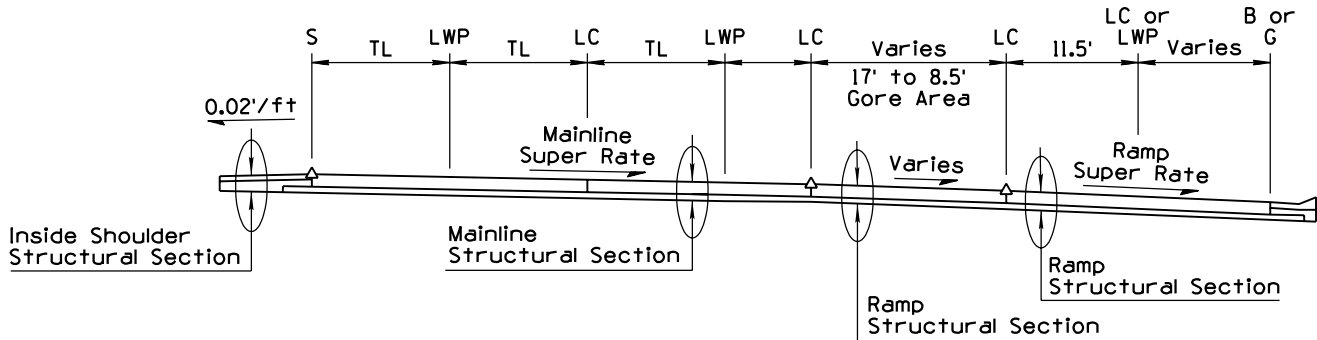
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING; CONVERTED FROM DETAIL X7043	RLF	9/04
2			
3			
4			



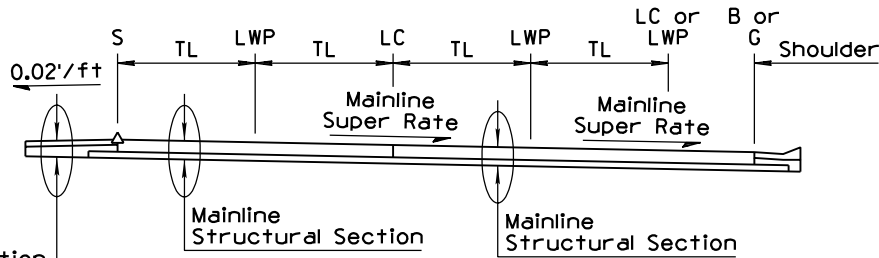
SECTION A-A  
MID-RAMP



SECTION C-C  
RAMP TAPER



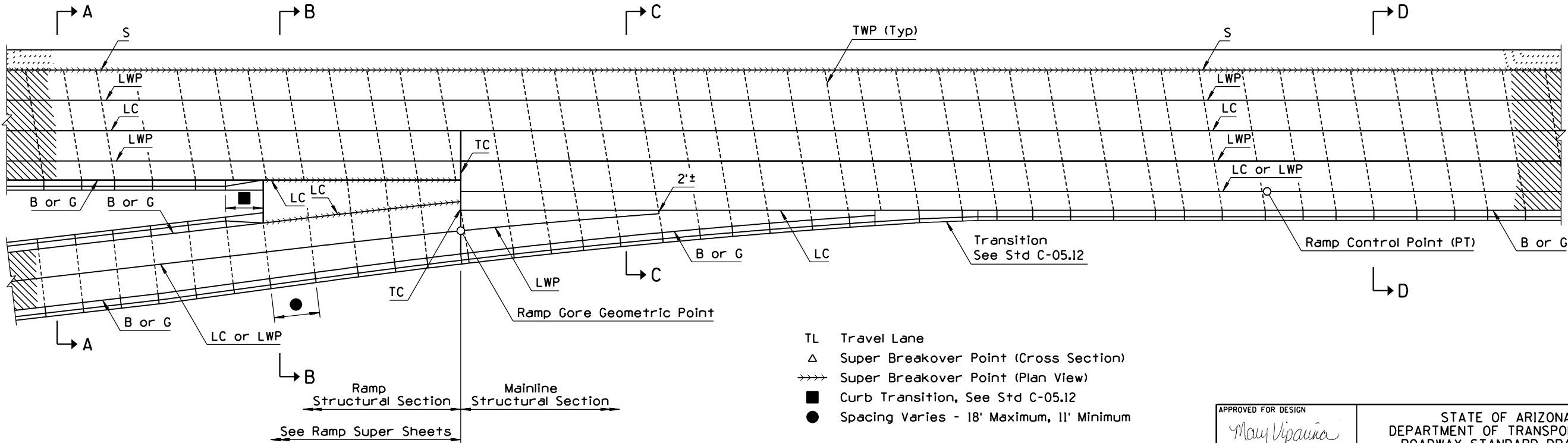
SECTION B-B  
GORE AREA



SECTION D-D  
MAINLINE

### GENERAL NOTES

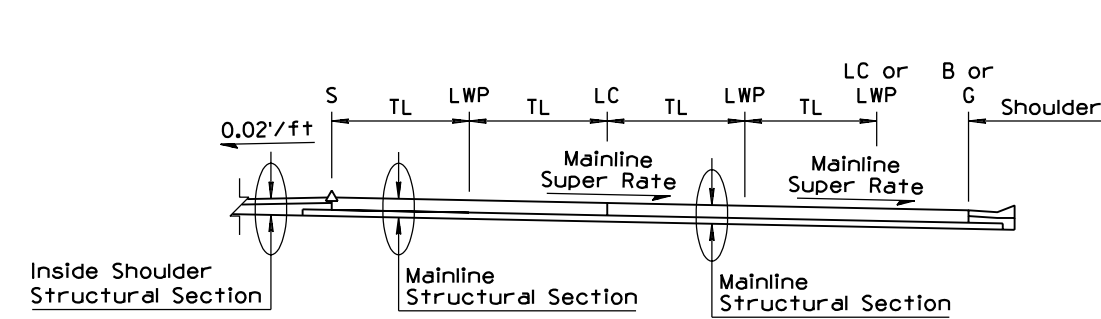
1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. See Std Dwg C-07.01 for joint information.
3. See plans for ramp dimensions.
4. For ramp joint spacing sequence, see Sheet 4 of 5
5. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



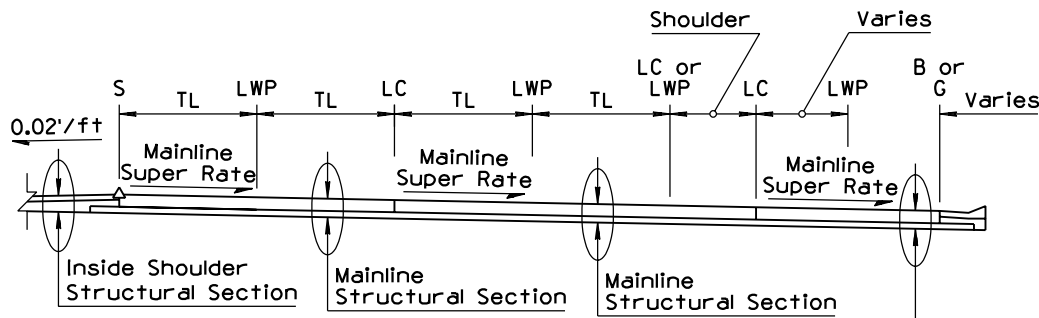
- TL Travel Lane
- △ Super Breakover Point (Cross Section)
- Super Breakover Point (Plan View)
- Curb Transition, See Std C-05.12
- Spacing Varies - 18' Maximum, 11' Minimum

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS PARALLEL TYPE ENTRANCE RAMP WITH AUXILIARY LANE	DRAWING NO. ① C-07.04 Sheet 1 of 5

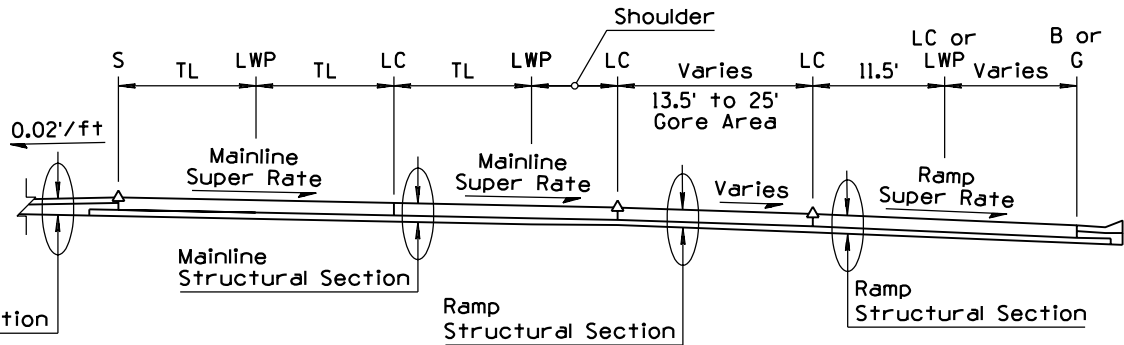
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING; CONVERTED FROM DETAIL X7053	RLF	9/04
2			
3			
4			



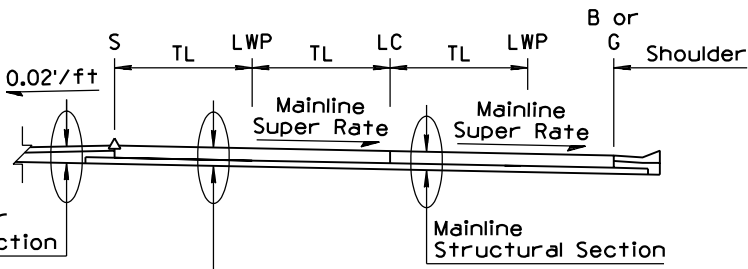
SECTION A-A  
MAINLINE



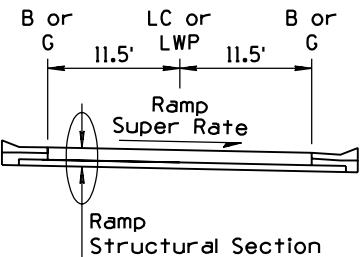
SECTION B-B  
RAMP TAPER



SECTION C-C  
GORE AREA

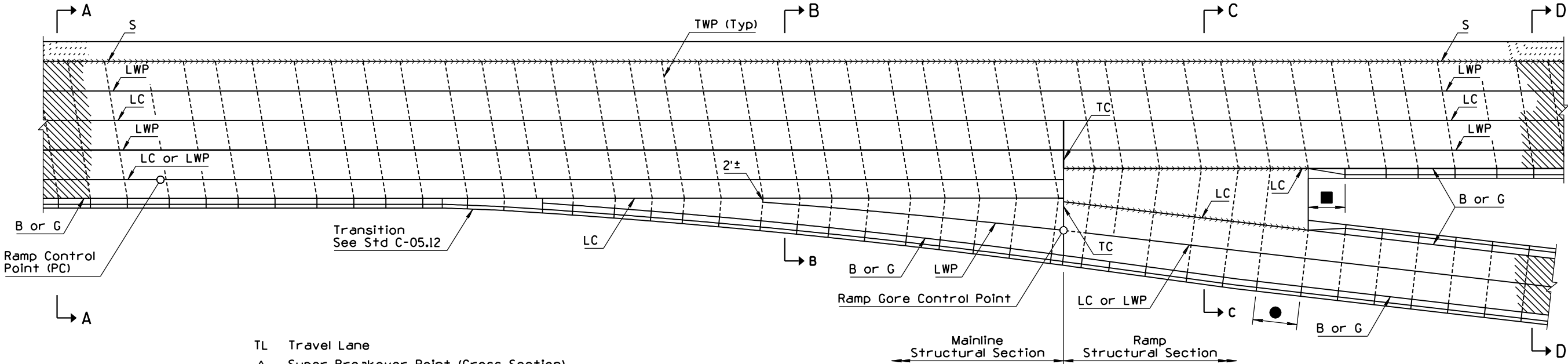


SECTION D-D  
MID-RAMP



### GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. See Std Dwg C-07.01 for joint information.
3. See plans for ramp dimensions.
4. For ramp joint spacing sequence, see Sheet 4 of 5.
5. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.



- TL Travel Lane
- △ Super Breakover Point (Cross Section)
- Super Breakover Point (Plan View)
- Curb Transition, See Std C-05.12
- Spacing Varies - 18' Maximum, 11' Minimum

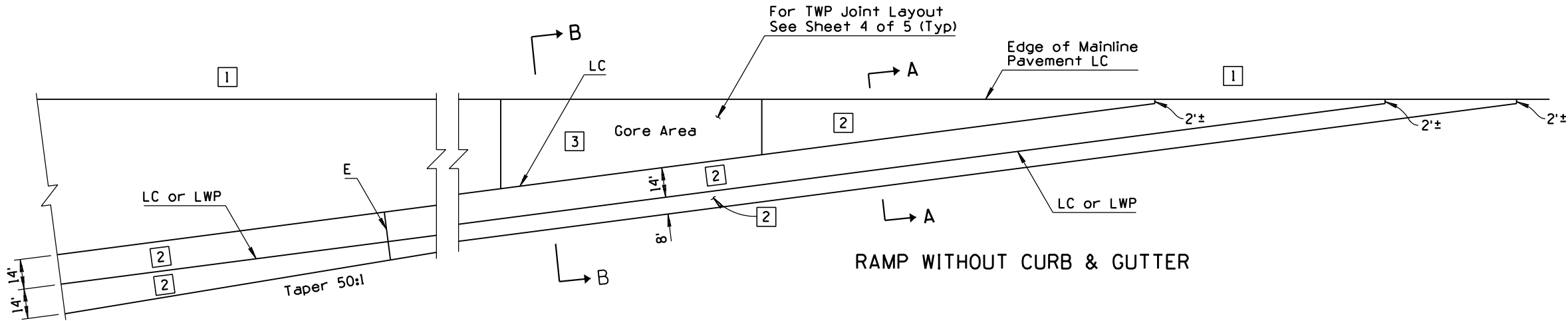
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS PARALLEL TYPE EXIT RAMP WITH AUXILIARY LANE	DRAWING NO. ① C-07.04 Sheet 2 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.04 TO C-07.04, SHEET 1 OF 5	RLF	9/04
2			
3			
4			

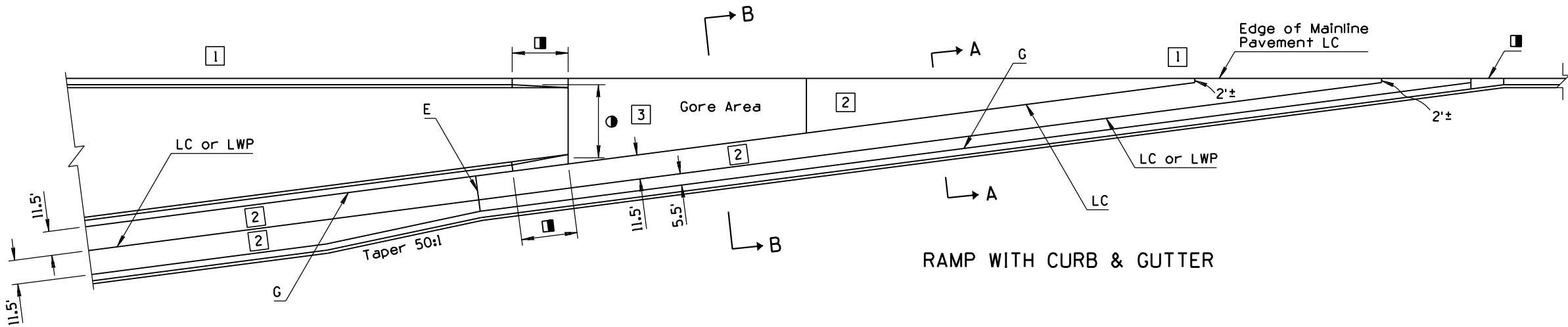
GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened plane construction joint as directed.
3. See Std Dwg C-07.01 for joint information.
4. See plans for ramp dimensions.
5. For ramp joint spacing sequence, see Sheet 4 of 5.
6. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

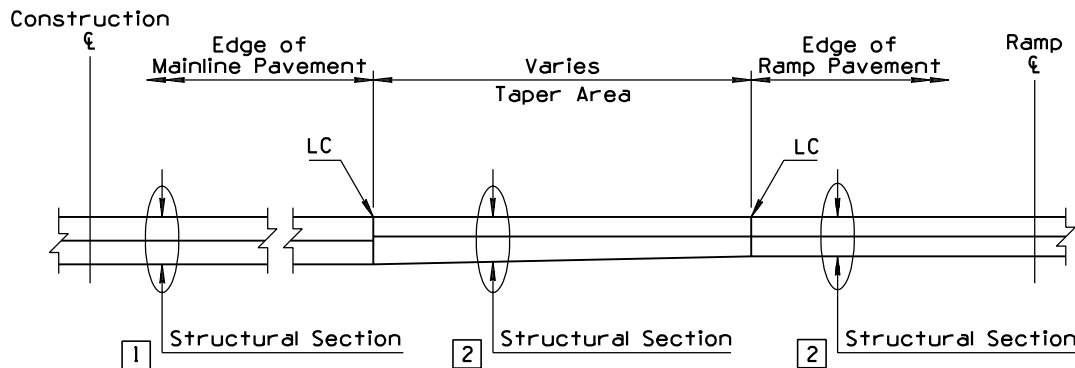
- Transition, See Std Dwg C-05.12
- 12' Face of Curb to Face of Curb on Entrance Ramp
- 1 Mainline Structural Section  
See Plans
- 2 Ramp Structural Section  
See Plans
- 3 Gore Structural Section  
See Plans



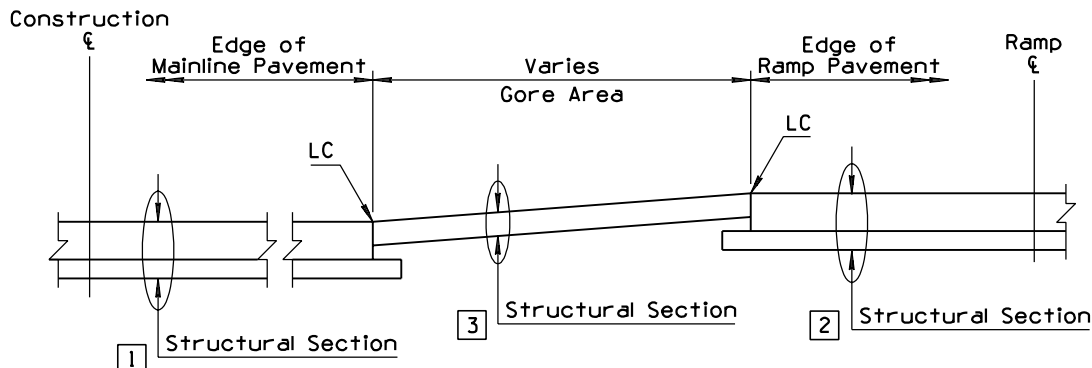
RAMP WITHOUT CURB & GUTTER



RAMP WITH CURB & GUTTER



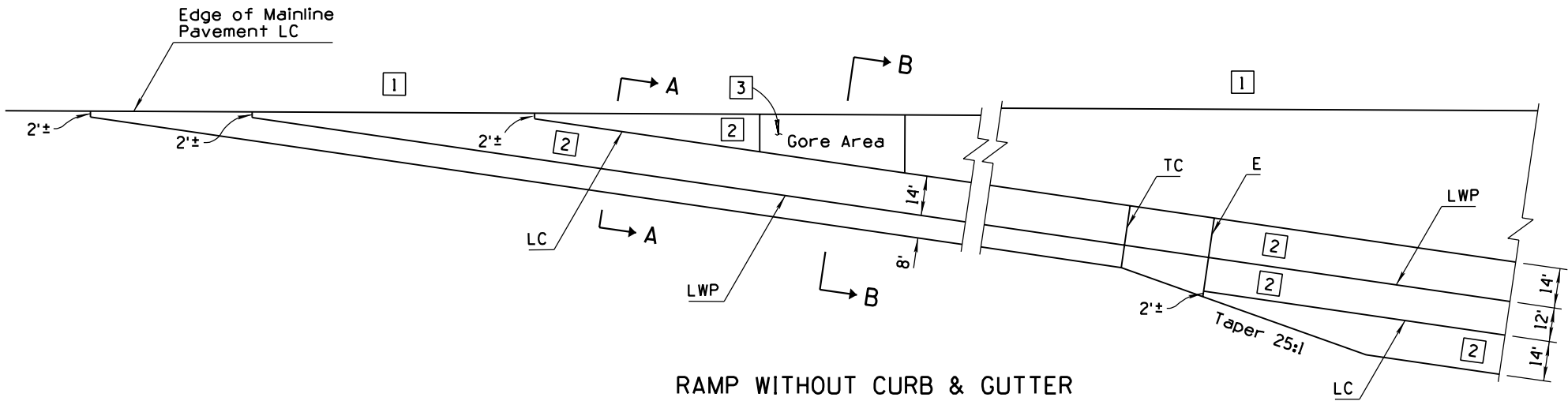
SECTION A-A  
RAMP TAPER



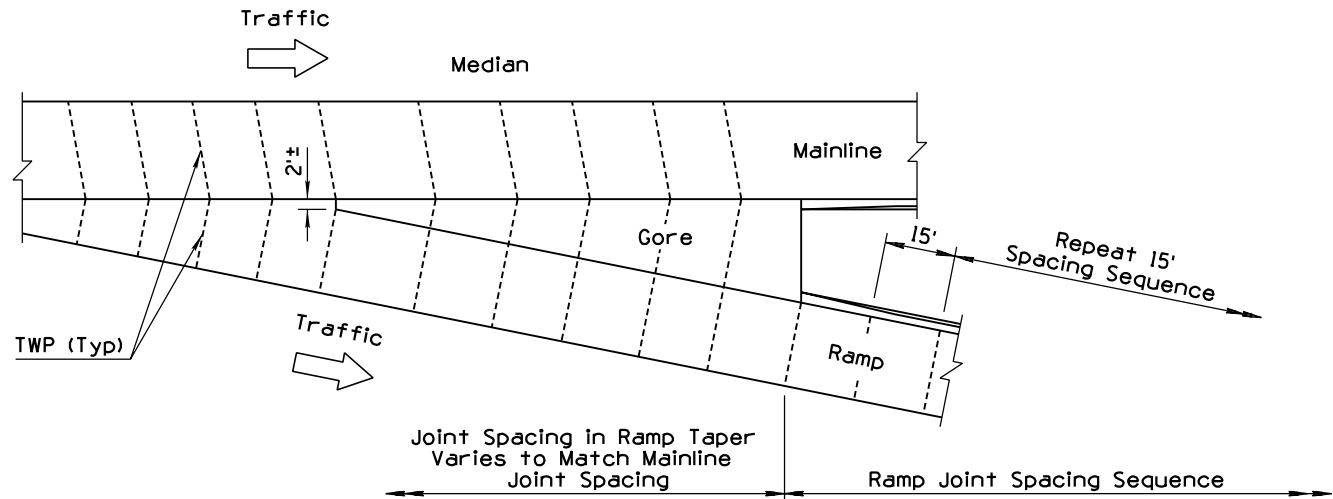
SECTION B-B  
GORE AREA

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS TAPER TYPE ENTRANCE RAMP	DRAWING NO. ① C-07.04 Sheet 3 of 5

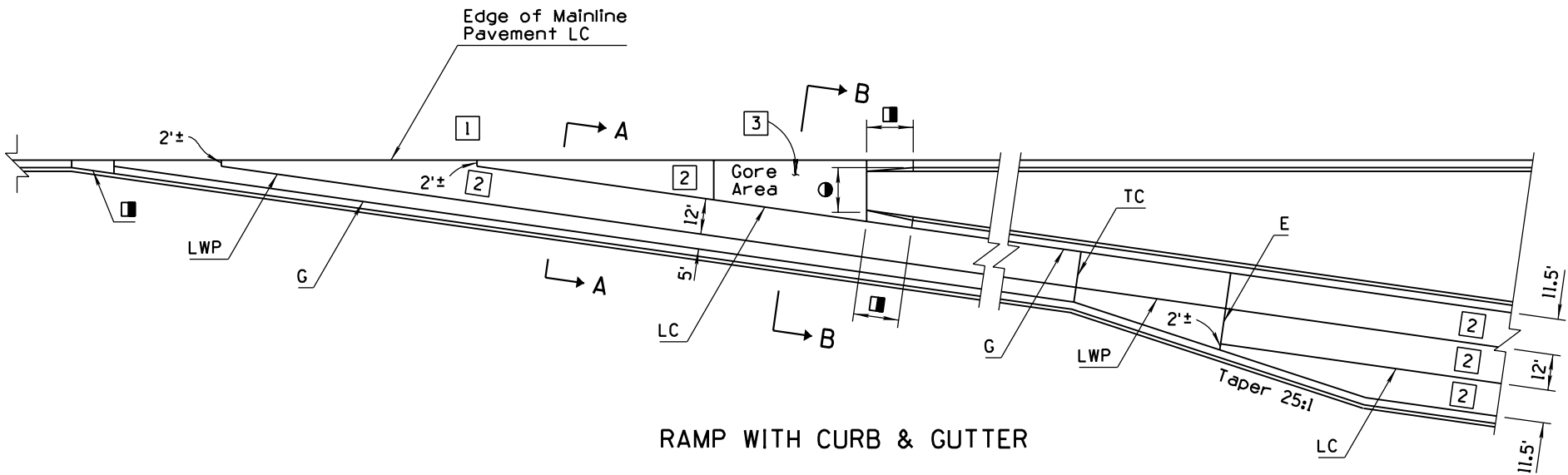
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.05 TO C-07.04, SHEET 4 OF 5	RLF	9/04
2			
3			
4			



RAMP WITHOUT CURB & GUTTER



TYPICAL TRANSVERSE WEAKENED PLANE  
JOINT LAYOUT AT GORE AREAS  
Exit Ramp Shown  
Entrance Ramp Similar



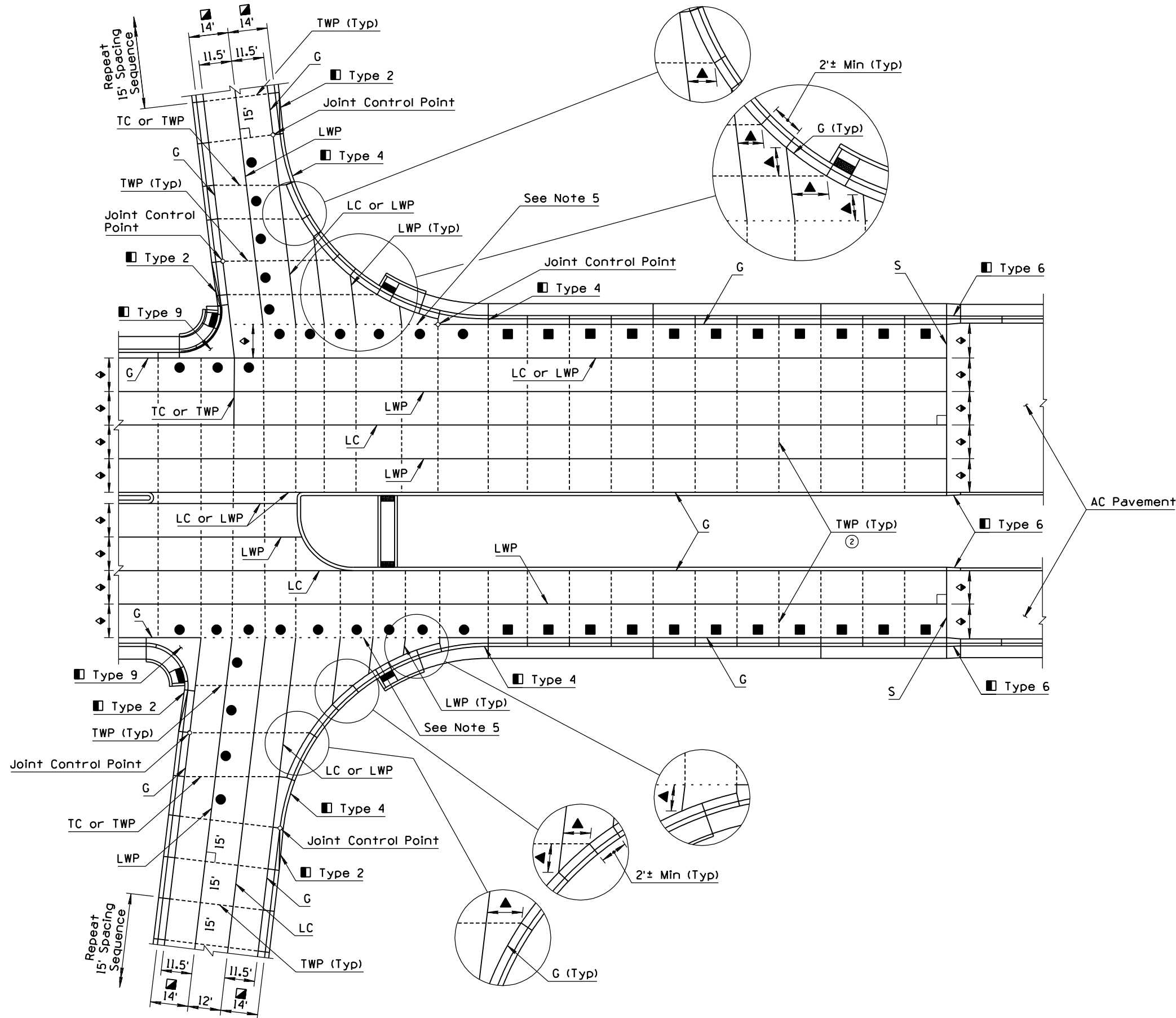
RAMP WITH CURB & GUTTER

GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened plane construction joint as directed.
3. See Std Dwg C-07.01 for joint information.
4. See plans for ramp dimensions.
- Transition, See Std Dwg C-05.12
- 20' Face of Curb to Face of Curb on Exit Ramp
- 1 Mainline Structural Section See Plans
- 2 Ramp Structural Section See Plans
- 3 Gore Structural Section See Plans

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS TAPER TYPE EXIT RAMP	DRAWING NO. ① C-07.04 Sheet 4 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-07.10 TO C-07.04, SHEET 5 OF 5	RLF	9/04
2	REARRANGED DRAWING	RT/RLF	9/04
3			
4			



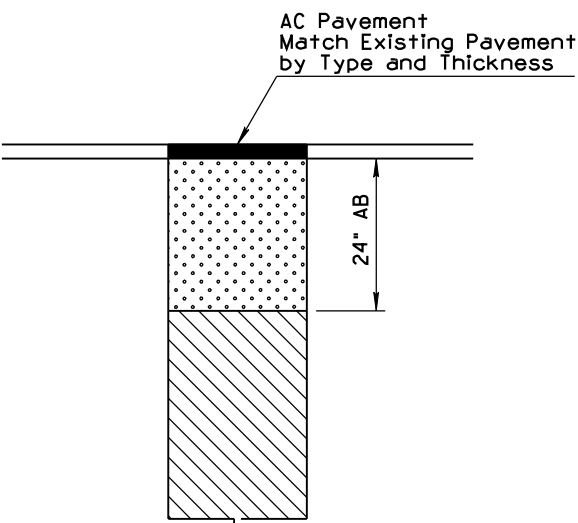
## GENERAL NOTES

1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
2. See Std Dwg C-07.01 for joint information.
3. The ratio of transverse to longitudinal joint spacing shall be greater than  $\frac{2}{3}$  but not more than  $\frac{1}{2}$ .
4. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
5. See Plans for Crossroad Paving Type E or H Joint if PCC Paving S Joint if AC Paving
6. Transverse joints shall be perpendicular (90°) to the longitudinal joints, except as shown at the ramp terminal.

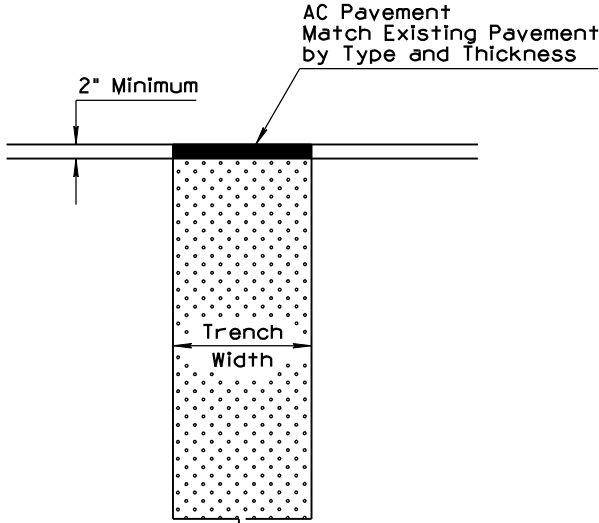
- ▲ 6' Minimum
- Varies - 18' Maximum  
11' Minimum
- Varies - 12' when adjacent gutter widths are 2' or less  
- 15' when adjacent gutter widths are greater than 2'
- ▣ Without curb and gutter
- ▣ Transition, See Std Dwg C-05.12
- ◆ Varies - 12' Typical or As Shown on Plans  
17' Maximum

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PCCP JOINT LOCATIONS CROSSROAD AND RAMP TERMINI	DRAWING NO. ① C-07.04 Sheet 5 of 5

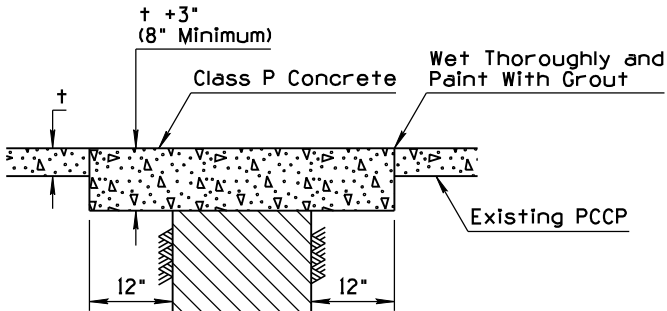
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED NOTE	PNB	10/95
2	DELETED TYPE E VIEW	RLF	7/05
3	MODIFIED STANDARD SPECIFICATION REFERENCE	RLF	7/05
4			



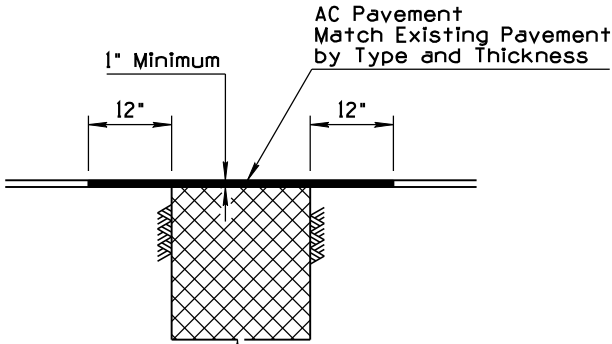
TYPE A



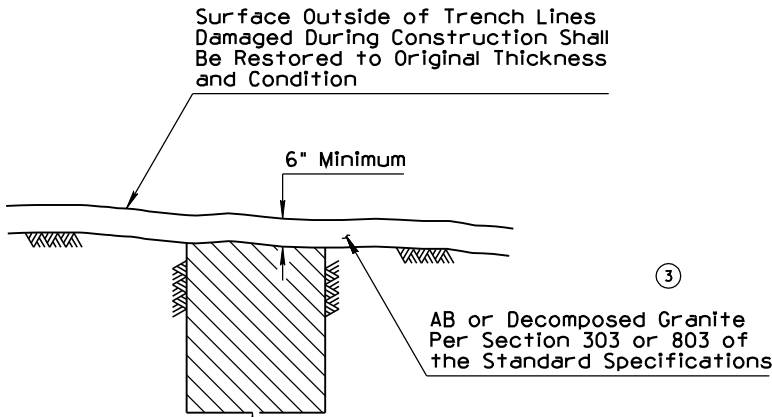
TYPE B



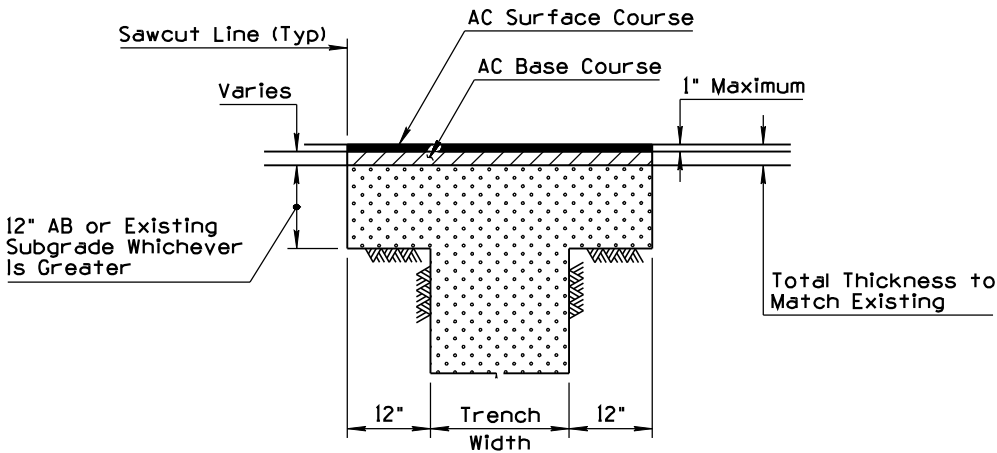
TYPE C



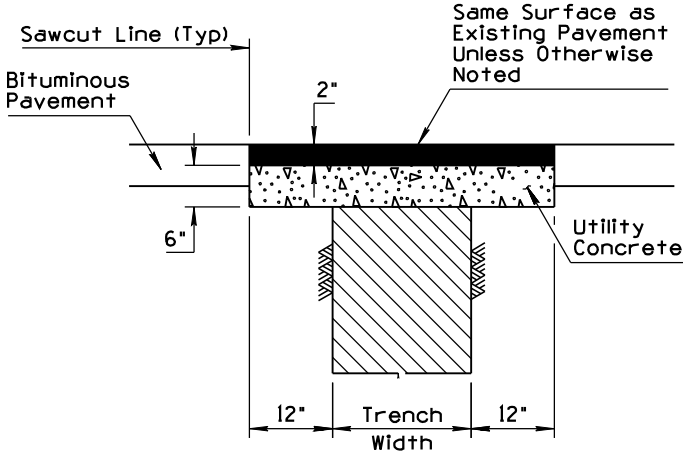
TYPE D



TYPE F



TYPE G

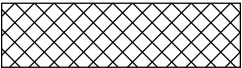

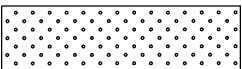


TYPE H

### GENERAL NOTES

1. Bedding per Section 501 of the Standard Specifications.
2. Asphalt concrete shall be in accordance with the requirements of the Standard Specifications.
3. 12" lip is required on the sides of trenches that are not parallel at the center line of the street.
4. Type D requires 9" of AB at top of trench when there is an existing base.
5. See Std Dwg C-13.15 for typical pipe installation.

### LEGEND

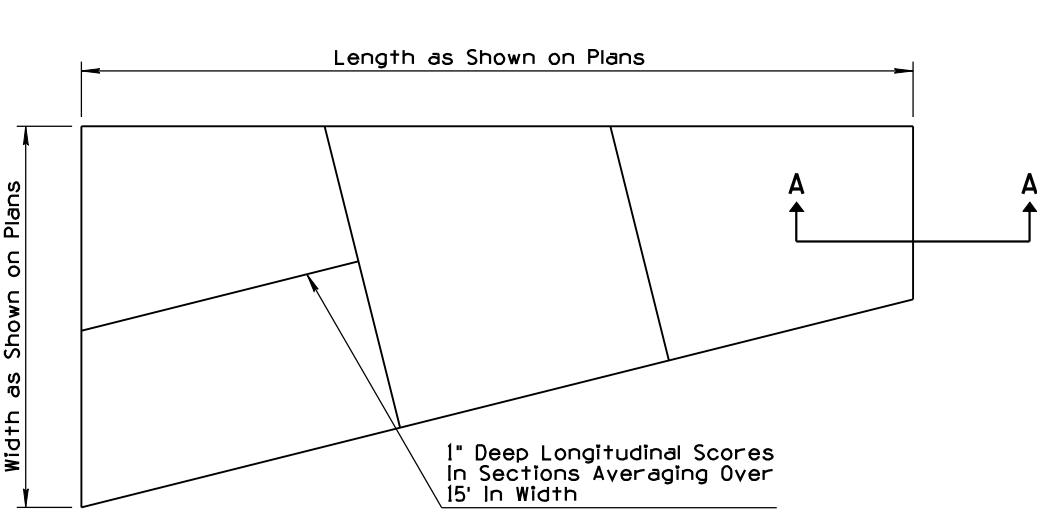
-  Compacted Backfill or Slurry Per Section 501 of the Standard Specifications
-  AB, Granular Backfill or Native Backfill Per Sections 303 and 501 of the Standard Specifications ③
-  AB Per Sections 303 and 501 of the Standard Specifications ③

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	TRENCH BACKFILL AND PAVEMENT REPLACEMENT	DRAWING NO. ③ C-07.06

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED PLAN VIEW AND SECTION	RLF	9/04
2	REVISED & RENAMED SECTION	RLF	9/04
3	REMOVED TITLE	RLF	11/04
4	REVISED SECTION GRAPHICS	RLF	7/05

GENERAL NOTES

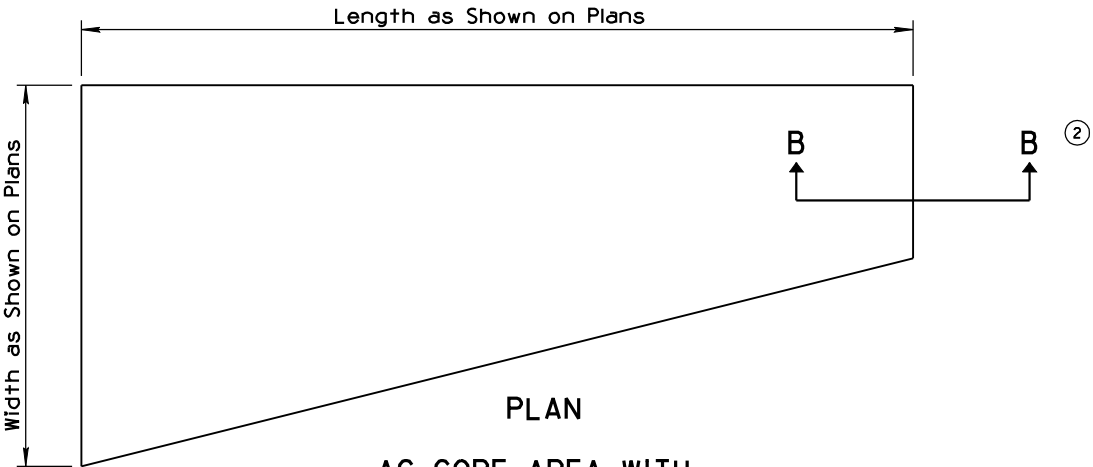
- Paved gore area shall be Class S Concrete,  $f'_c=4000$  PSI or AC as shown on plans.
- See Std Dwgs C-07.01 and C-07.04 for joint layout and details.



PLAN  
CONCRETE GORE AREA  
WITH ABUTTING CONCRETE PAVEMENT

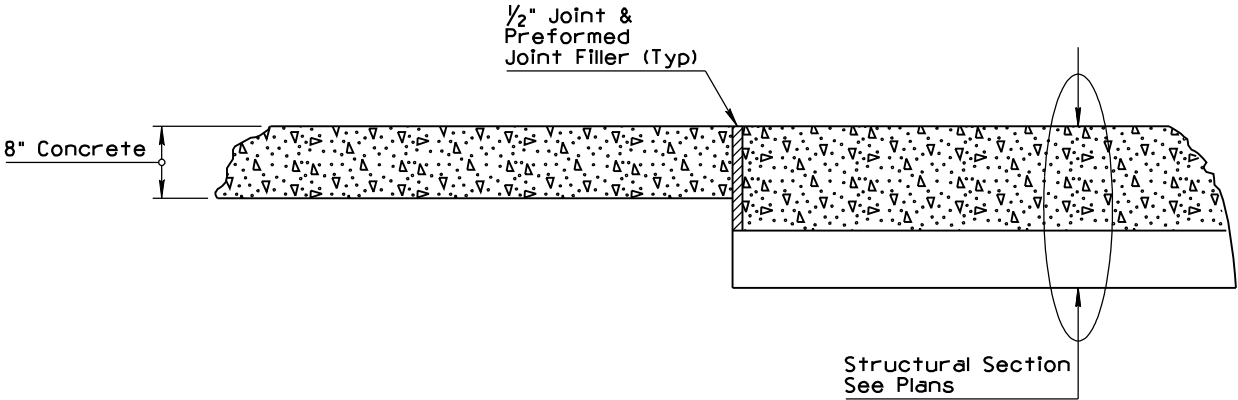
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3



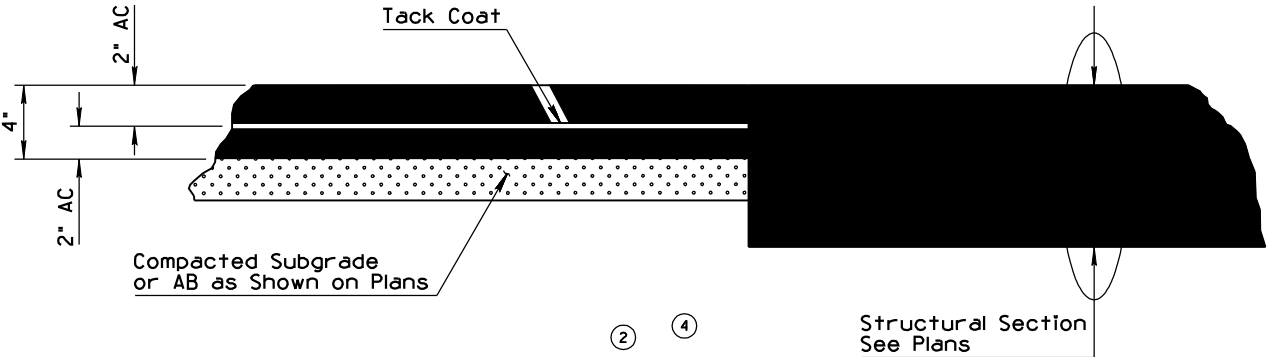
PLAN  
AC GORE AREA WITH  
ABUTTING AC PAVEMENT

2



SECTION A-A

1



SECTION B-B

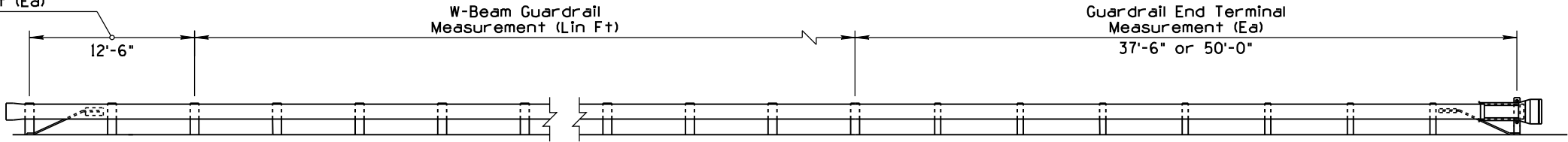
2

4

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	PAVED GORE AREA	DRAWING NO. C-08.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED BARRIER TRANSITION	RLF	7/05
2			
3			
4			

W-Beam Guardrail End Anchor  
Std Dwg C-10.08 (When Called for  
on Plans) Measurement (Ea)  
See Note 3

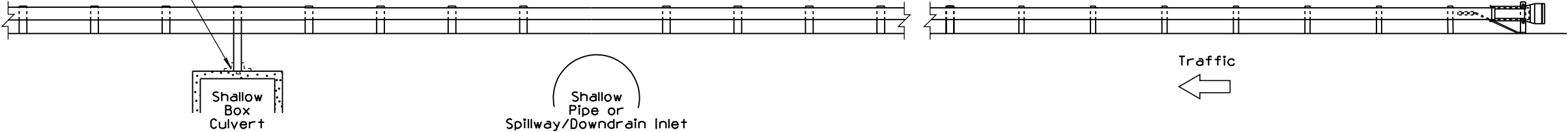


W-Beam Guardrail  
Measurement (Lin Ft)

Bolted Anchor  
for Guardrail  
Std Dwg C-10.07  
Measurement (Ea)  
Number Per Plans

Std Dwg C-10.06  
Nested W-Beam Guardrail  
Type 1, 2, or 3  
Measurement (Lin Ft)  
25'-0" or 37'-6"  
See Note 4

Guardrail End Terminal  
Measurement (Ea)  
37'-6" or 50'-0"



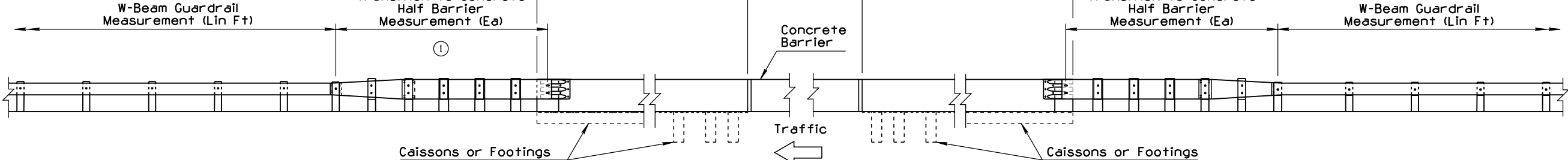
Std Dwg C-10.30  
Thrie-Beam Guardrail  
Transition to Concrete  
Half Barrier  
Measurement (Ea)

Std Dwg C-10.70, 10.71,  
10.72 or 10.73 Concrete  
Half-Barrier Transition  
Measurement (Ea)

Std Dwg C-10.70, 10.71,  
10.72 or 10.73 Concrete  
Half-Barrier Transition  
Measurement (Ea)

Std Dwg C-10.30  
Thrie-Beam Guardrail  
Transition to Concrete  
Half Barrier  
Measurement (Ea)

W-Beam Guardrail  
Measurement (Lin Ft)



CONCRETE HALF-BARRIER TRANSITION  
OFF STRUCTURE

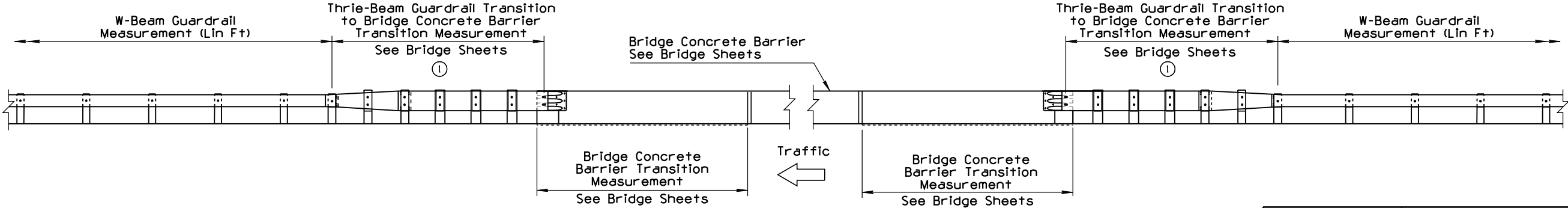
W-Beam Guardrail  
Measurement (Lin Ft)

Thrie-Beam Guardrail Transition  
to Bridge Concrete Barrier  
Transition Measurement  
See Bridge Sheets

Bridge Concrete Barrier  
See Bridge Sheets

Thrie-Beam Guardrail Transition  
to Bridge Concrete Barrier  
Transition Measurement  
See Bridge Sheets

W-Beam Guardrail  
Measurement (Lin Ft)



CONCRETE HALF-BARRIER TRANSITION ON STRUCTURE

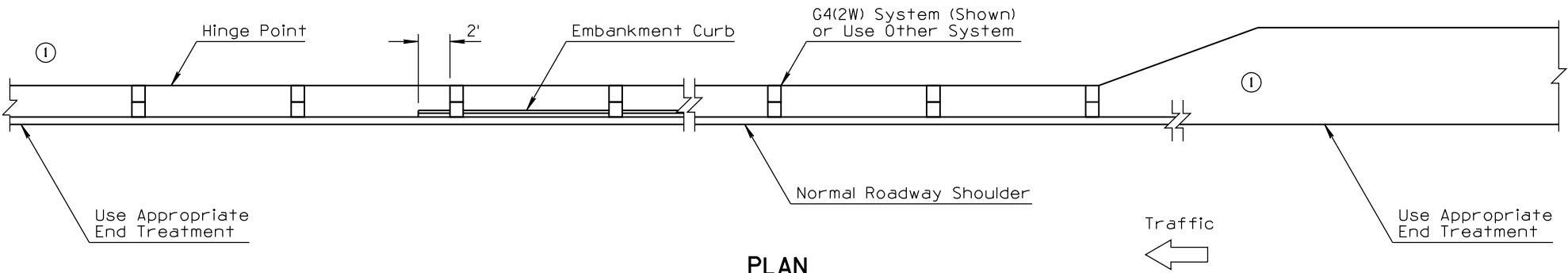
Concrete Barrier Transitions  
Constructed on Top of Wingwalls

GENERAL NOTES

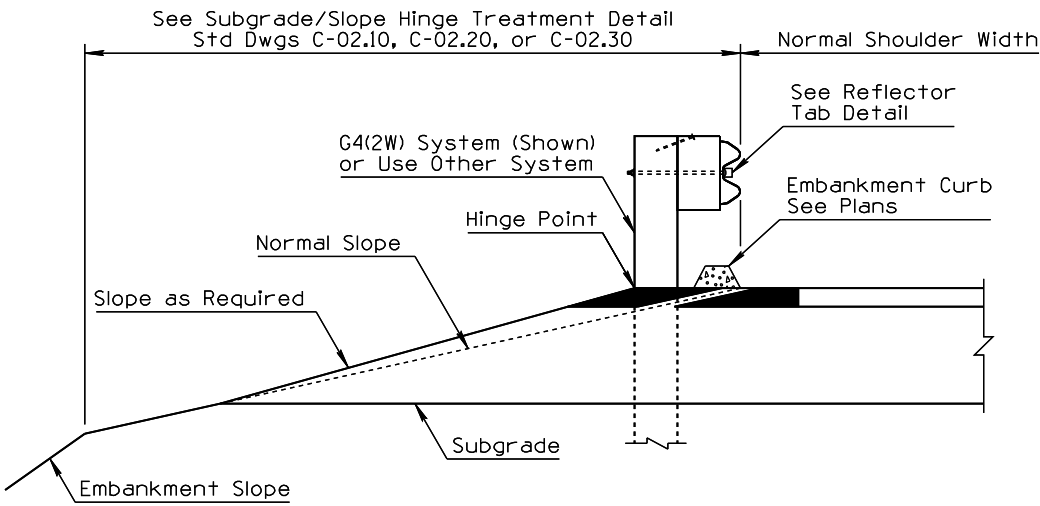
1. Lengths as shown unless otherwise indicated on project plans.
2. Post type (timber or steel) for transitions shall match post type of adjoining guardrail.
3. Shown for one-way traffic. For two-way traffic, departure requires approach end treatment when located within the clear zone of opposing traffic.
4. See Std Specs for nested guardrail pay item.

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	GUARDRAIL MEASUREMENT LIMITS	DRAWING NO. C-10.00

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
2	REVISED GENERAL NOTES 3 & 4	RLF	9/04
3	MODIFIED STANDARD DRAWING TITLE	RLF	9/04
4	REVISED SECTION VIEW TITLE	RLF	7/05



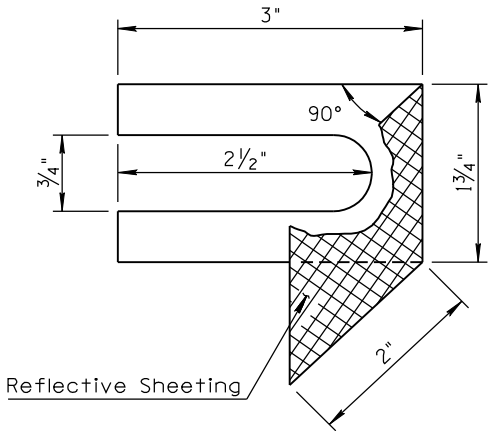
PLAN



④  
TYPE A SECTION

GENERAL NOTES

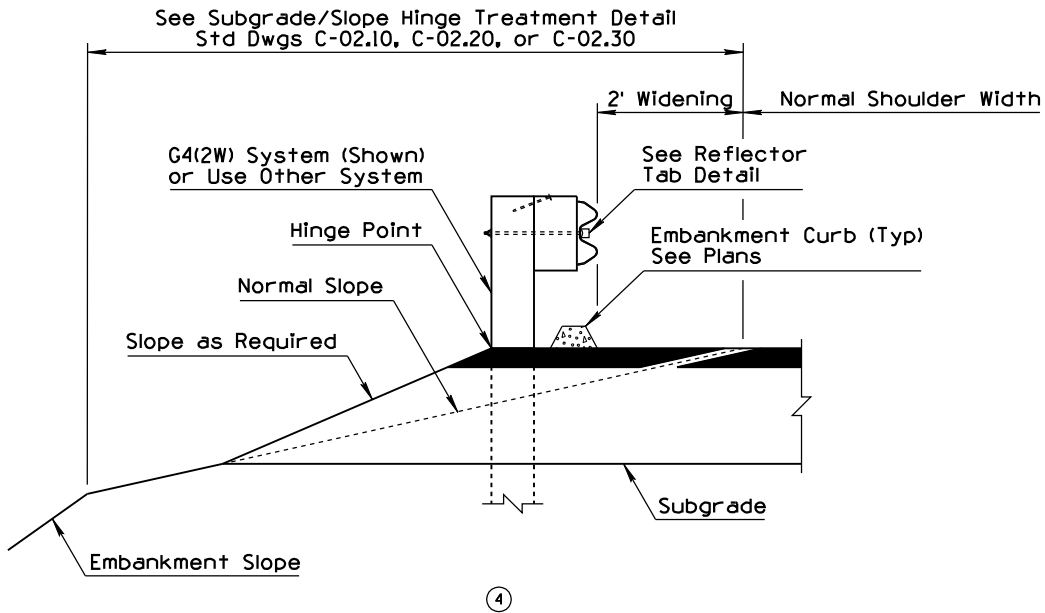
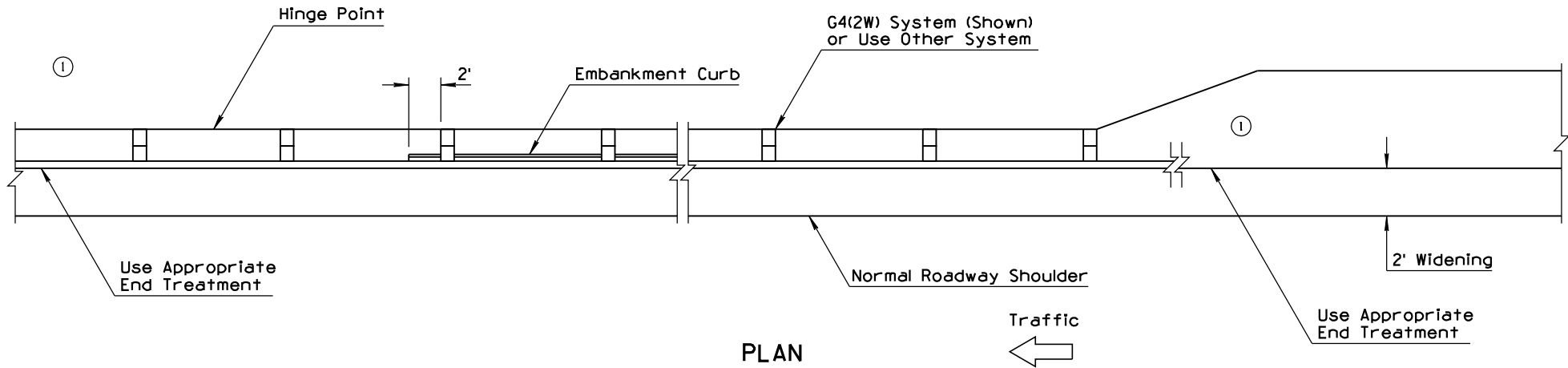
1. All embankment curb shall be protected by guardrail.
  2. Guardrail shall extend beyond the limits of embankment curb.
  - ② 3. See Std Dwg C-10.00 for measurement limits.
  - ② 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.
- ▲ Top of Rail = 28"  
See General Note 1  
Std Dwg C-10.03



REFLECTOR TAB DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	GUARDRAIL INSTALLATION TYPE A AND REFLECTOR TAB ③	DRAWING NO. C-10.01

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
2	REVISED GENERAL NOTES 3 & 4	RLF	9/04
3	REVISED STANDARD DRAWING TITLE	RLF	9/04
4	REVISED SECTION VIEW TITLE	RLF	7/05

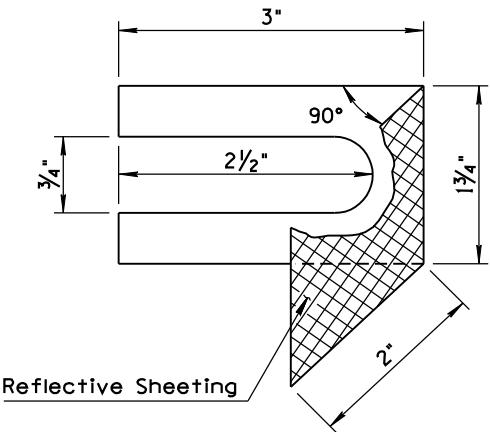


TYPE B SECTION

GENERAL NOTES

1. All embankment curb shall be protected by guardrail.
2. Guardrail shall extend beyond the limits of embankment curb.
- ② 3. See Std Dwg C-10.00 for measurement limits.
- ② 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.

▲ Top of Rail = 28"  
See General Note 1  
Std Dwg C-10.03



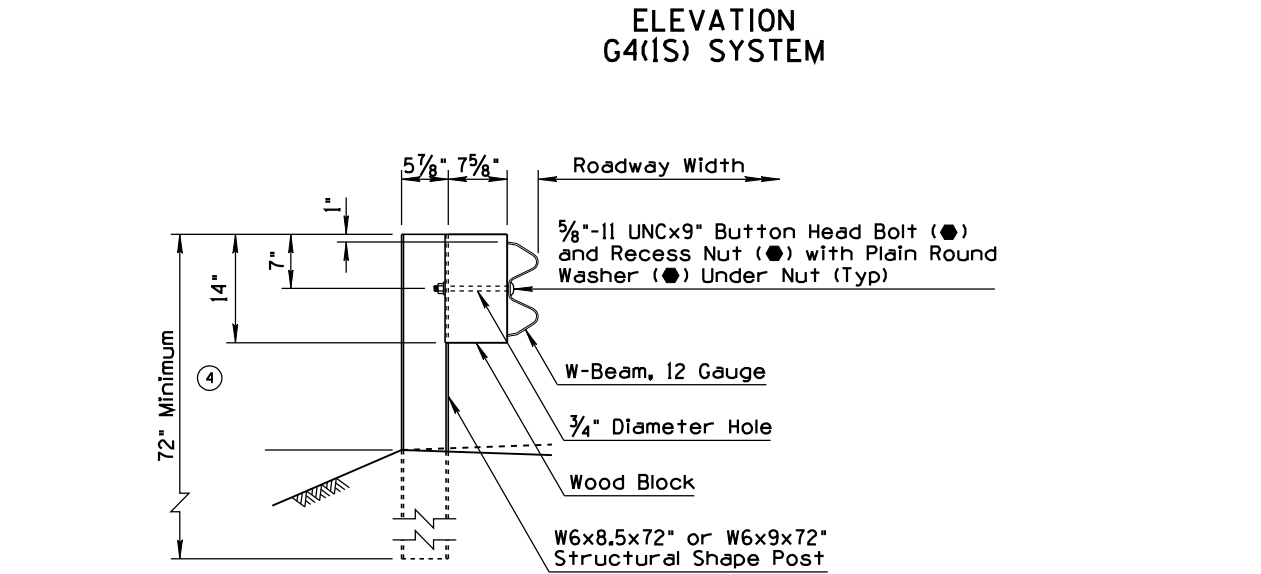
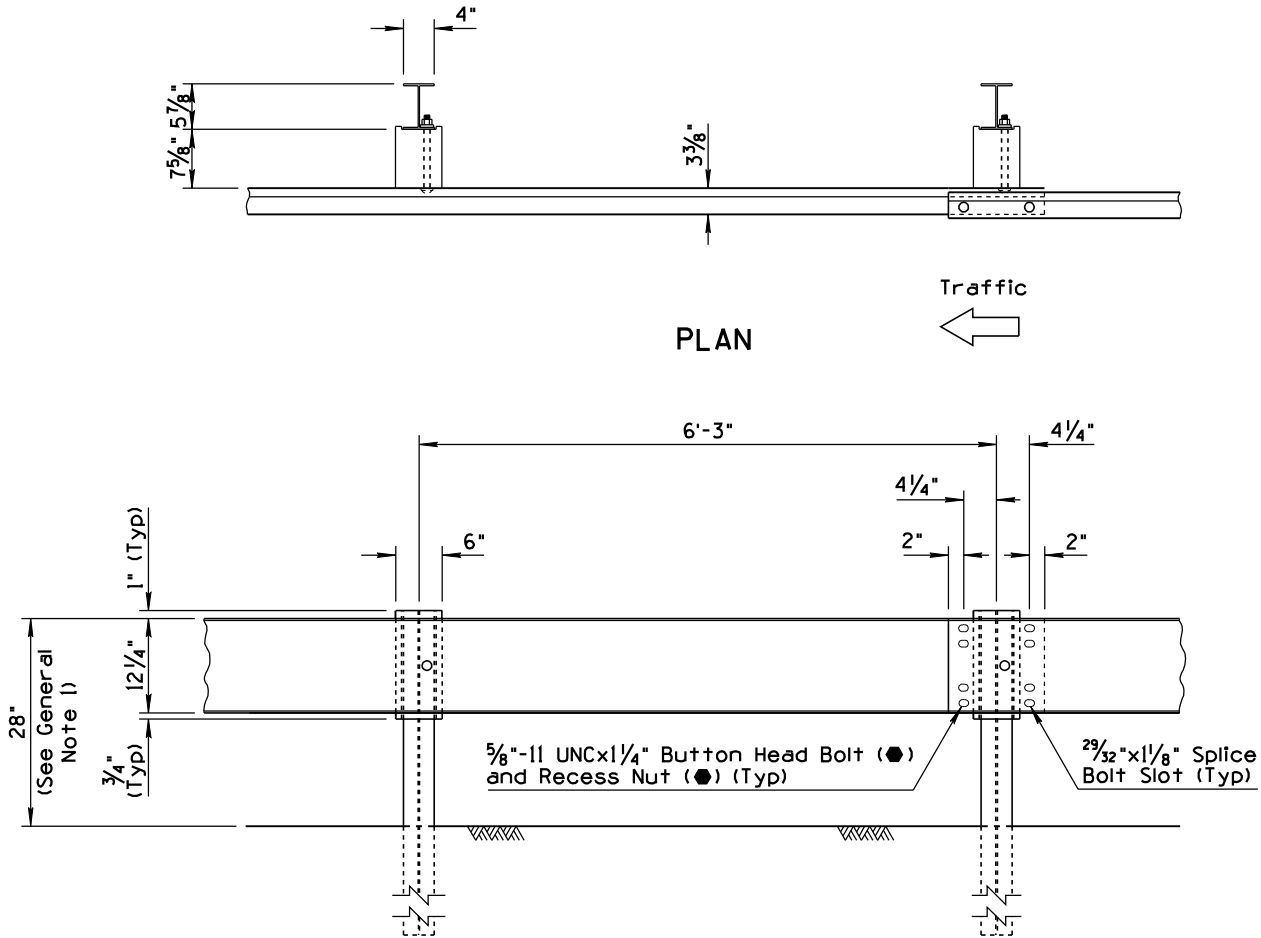
REFLECTOR TAB DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	GUARDRAIL INSTALLATION TYPE B AND REFLECTOR TAB ③	DRAWING NO. C-10.02

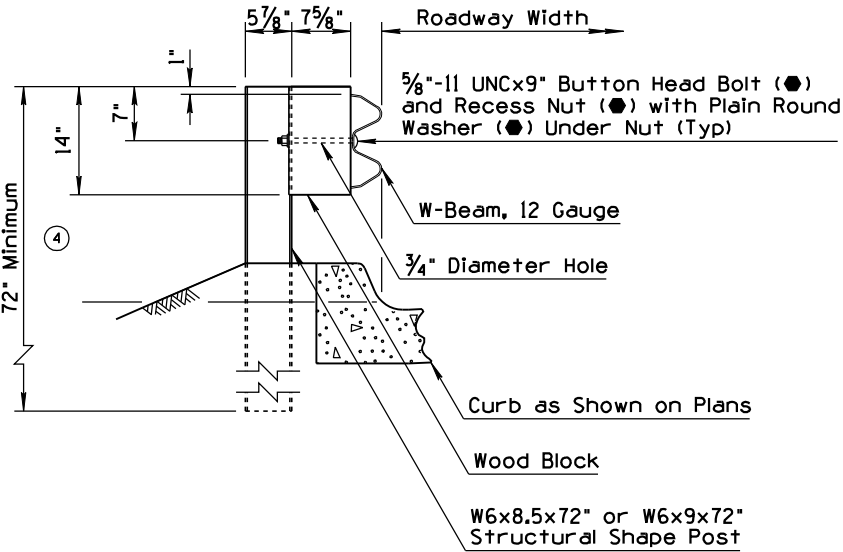


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DESIGNATION	RLF	9/04
2	REVISED GENERAL NOTES 1 & 2	RLF	9/04
3	RENAMED STD DRAWING FROM C-10.21 & REVISED TITLE	RLF	9/04
4	REMOVED 29 INCH DIMENSION	RLF	7/05

### G4(1S) SYSTEM



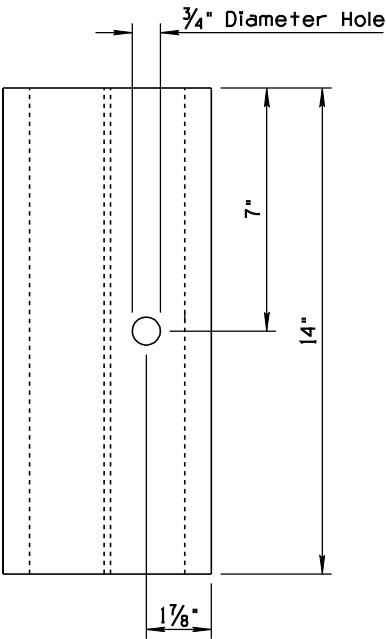
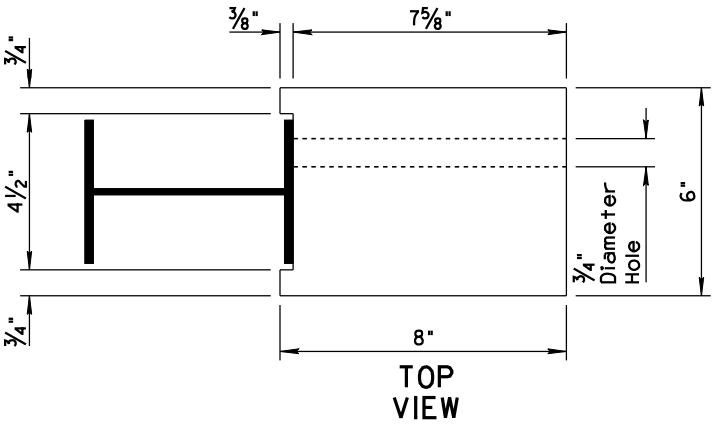
SECTION G4(1S)  
SHOWN WITHOUT CURB



SECTION G4(1S)  
SHOWN WITH CURB

### GENERAL NOTES

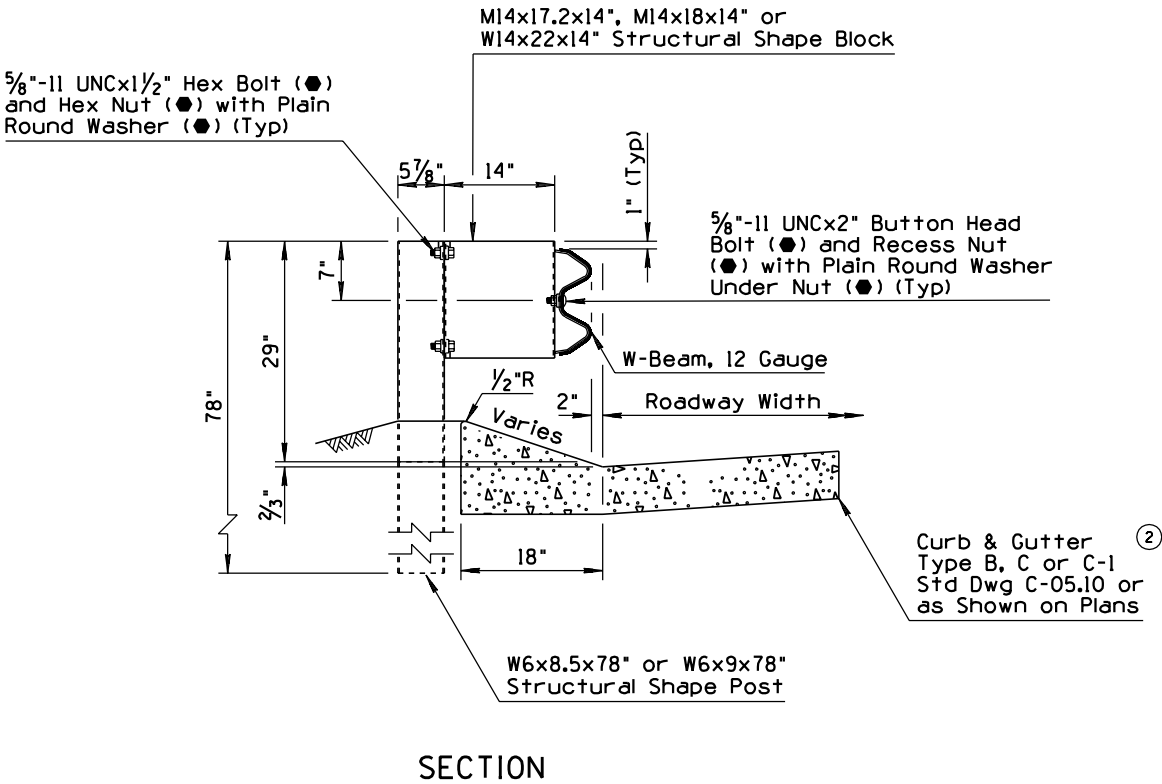
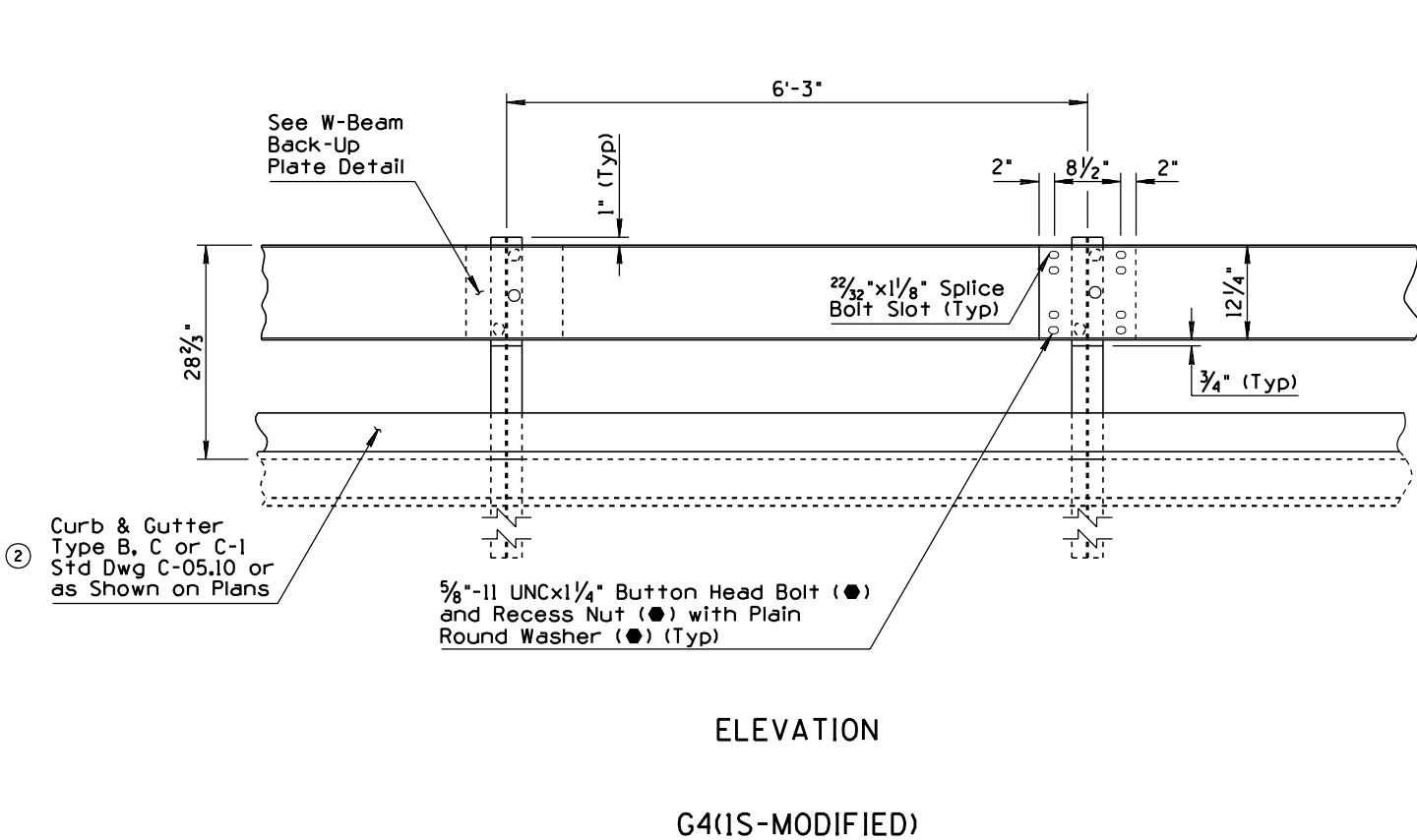
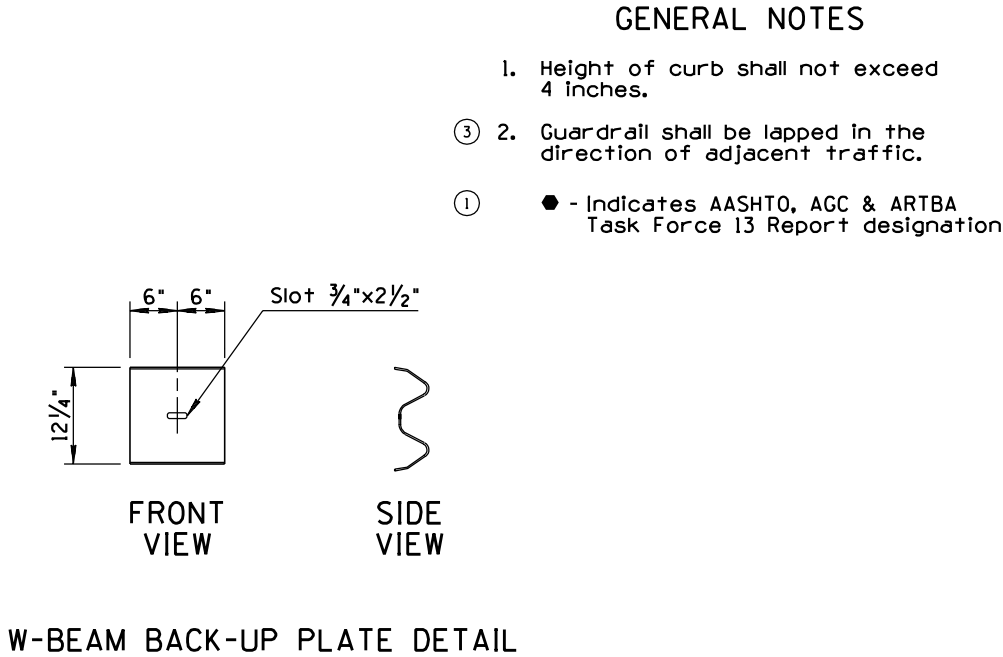
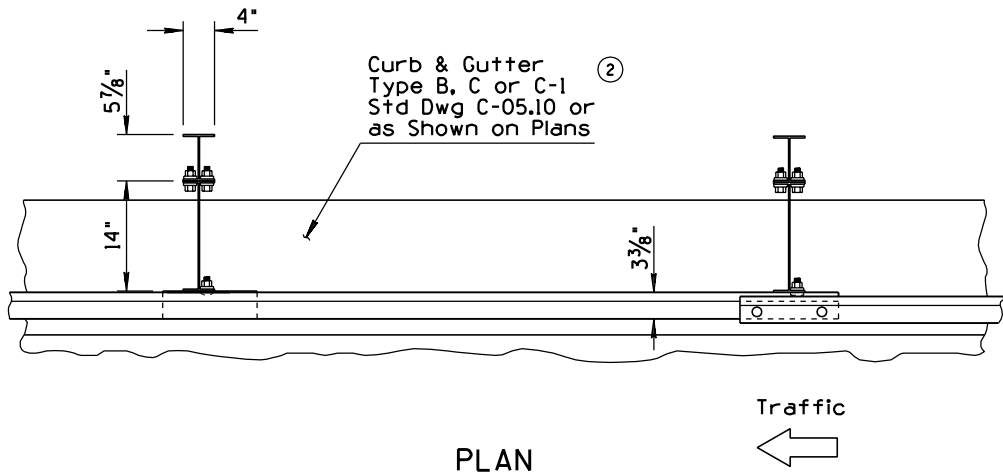
1. The control height for guardrail system is 28" to the top of rail, measured at the face of rail from the normal finished shoulder elevation.
2. Guardrail shall be lapped in the direction of adjacent traffic.
1. ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



WOOD BLOCK DETAIL

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	W-BEAM GUARDRAIL G4(1S) BLOCKED-OUT STEEL POST ③	DRAWING NO. C-10.04 ③

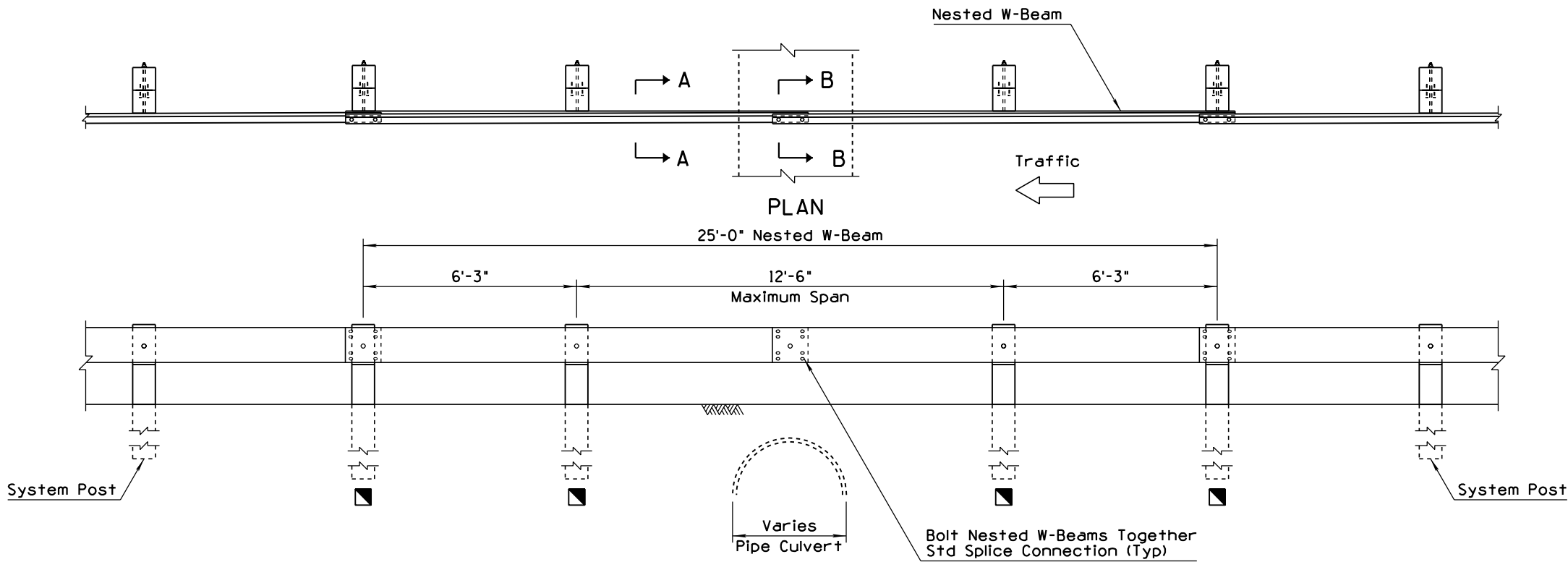
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
①	REVISED DESIGNATION	RLF	9/04
②	DELETED REFERENCE TO TYPE B-1 CURB & GUTTER	RLF	9/04
③	ADDED GENERAL NOTE 2	RLF	9/04
④	RENAMED STD DWG FROM C-10.22, SHEET 1 & MODIFIED TITLE	RLF	9/04



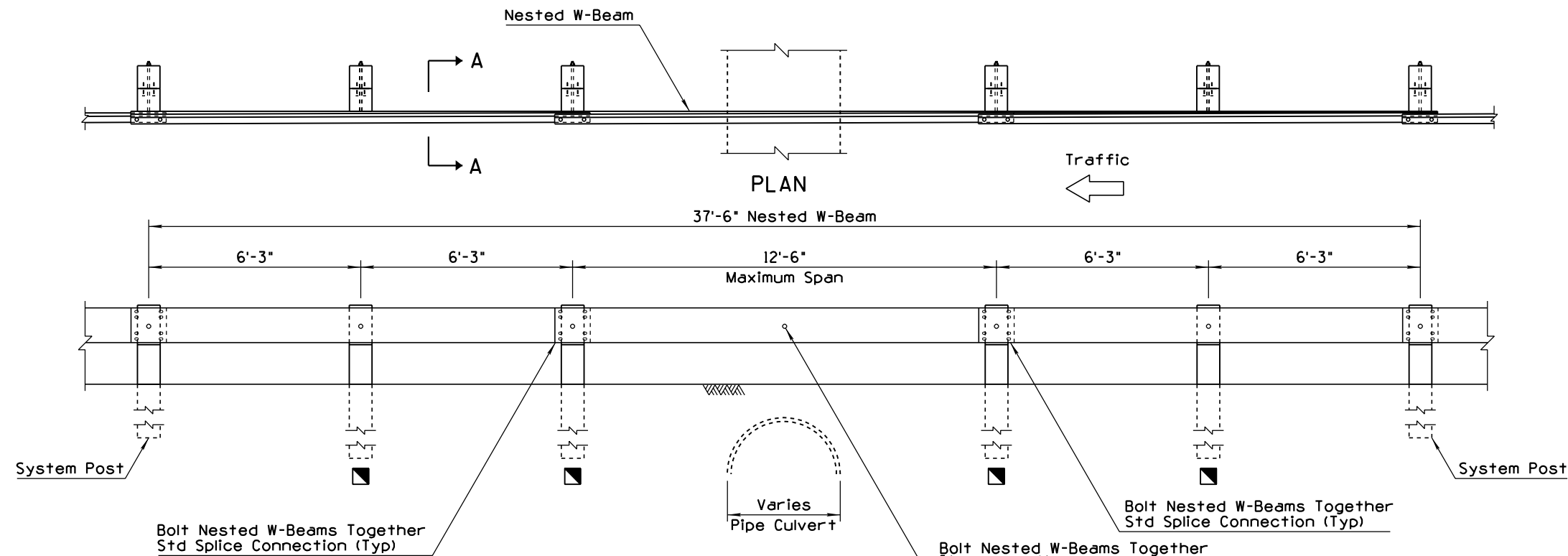
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL G4(MODIFIED) WITH FREEWAY CURB AND GUTTER ④	DRAWING NO. C-10.05 Sheet 1 of 2 ④



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.28, 1 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED GENERAL NOTES 2 & 3	RLF	9/04
4	REVISED SECTION VIEW	RLF	9/04



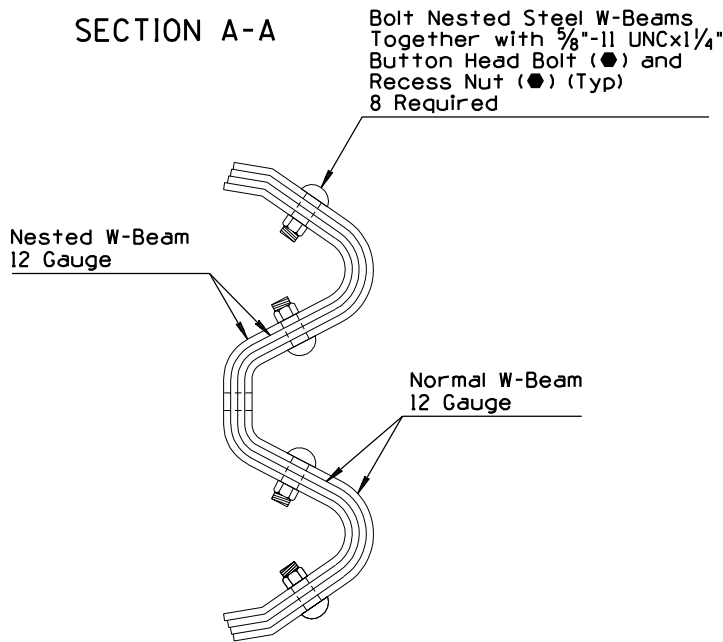
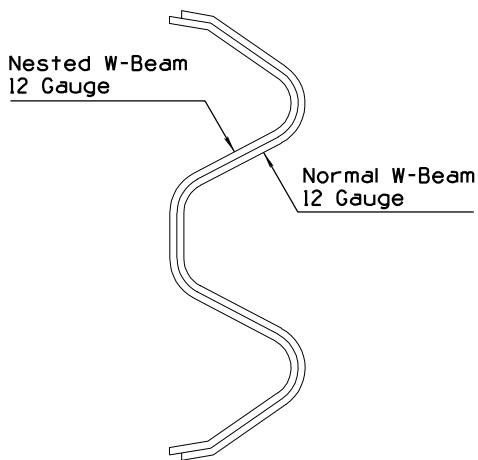
ELEVATION  
NESTED STEEL W-BEAM - TYPE 1 - SHORT SPAN  
(SPlice CONNECTION INSIDE SPAN) LENGTH = 25'-0"



ELEVATION  
NESTED STEEL W-BEAM - TYPE 2 - SHORT SPAN  
(SPlice CONNECTION OUTSIDE SPAN) LENGTH = 37'-6"

## GENERAL NOTES

1. See Std Dwgs C-10.03 and C-10.04 for additional information and dimensions.
  2. Install Type 1 when splice connection location falls on object. Install Type 2 when non-splice post falls on object.
  3. Guardrail shall be lapped in the direction of adjacent traffic.
  4. For Type 1 and Type 2, a maximum of one post may be eliminated within a span of nested guardrail.
- ② ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation
- 72" Timber Post



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL NESTED TYPES 1 AND 2 ①	DRAWING NO. C-10.06 ① Sheet 1 of 2

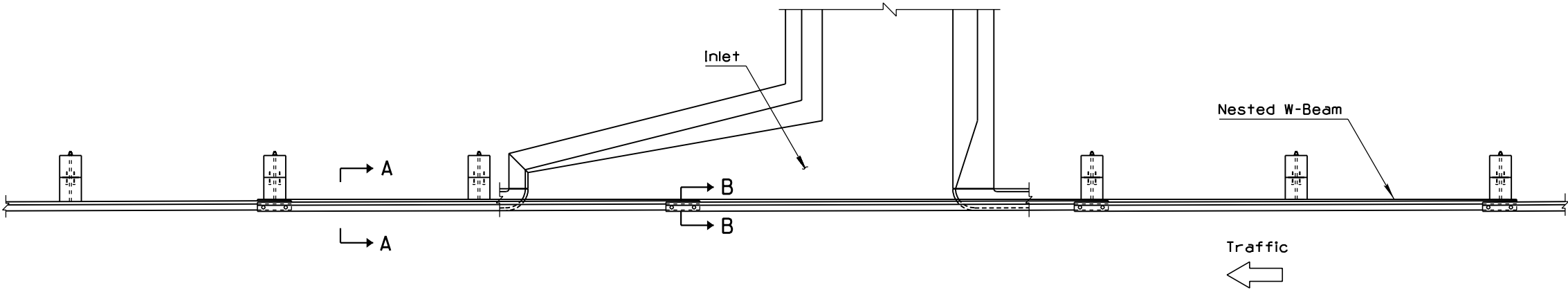
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.28, 2 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 3	RLF	9/04
3	ADDED DESIGNATION	RLF	9/04
4			

GENERAL NOTES

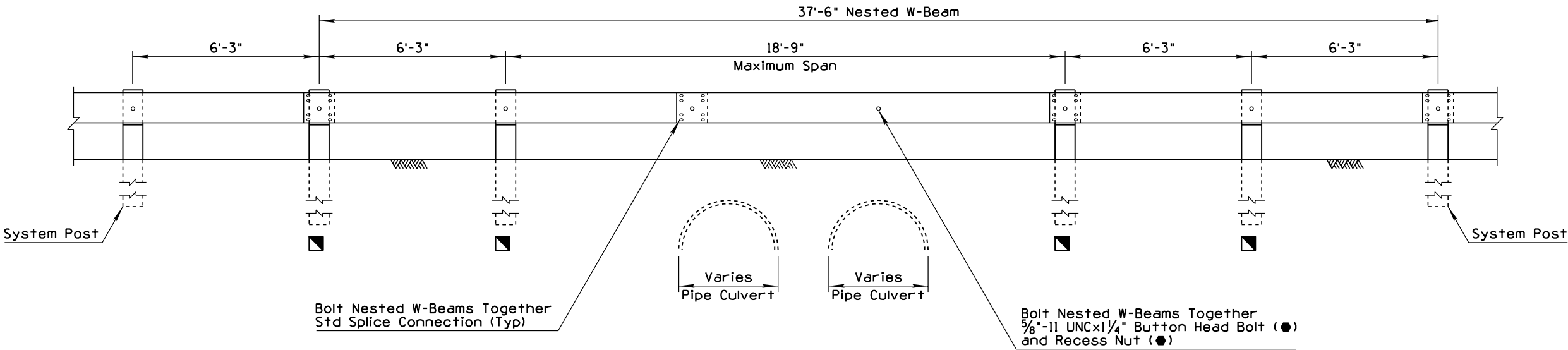
1. Use Type 3 Nested W-Beam to span downdrain or spillway inlets as shown in the plan view.
2. Use Type 3 Nested W-Beam to span multiple obstructions as shown in the elevation view.
- ② 3. Guardrail shall be lapped in the direction of adjacent traffic.
4. For Type 3, a maximum of two posts may be eliminated within a span of nested guardrail.

● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

■ 72" Timber Post



PLAN



ELEVATION

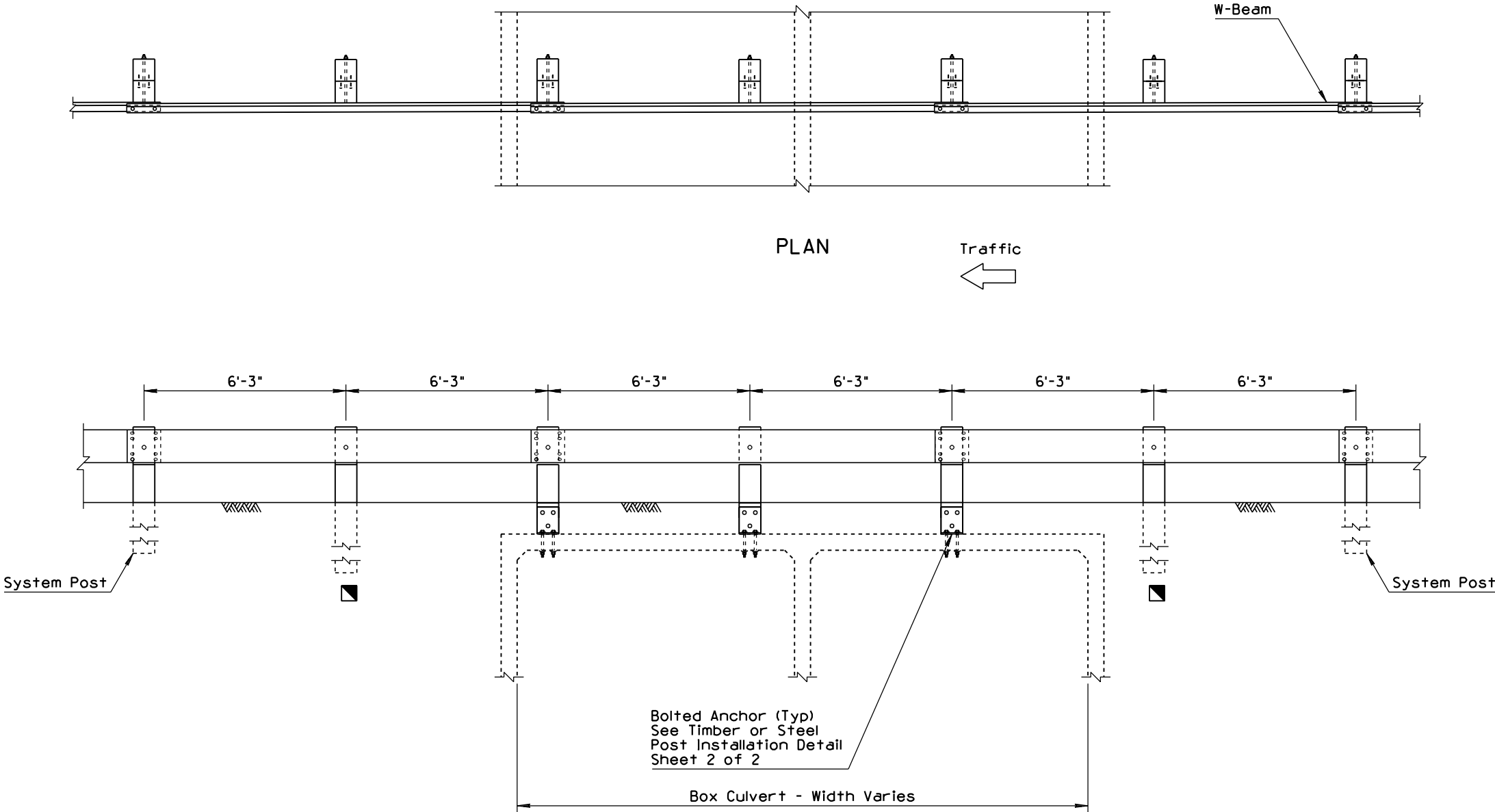
NESTED STEEL W-BEAM - TYPE 3 - LONG SPAN  
LENGTH = 37'-6"

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL NESTED TYPE 3	DRAWING NO. C-10.06 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM C-10.29, 1 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 2	RLF	9/04
3	REVISED GENERAL NOTE 1	RLF	9/04
4			

GENERAL NOTES

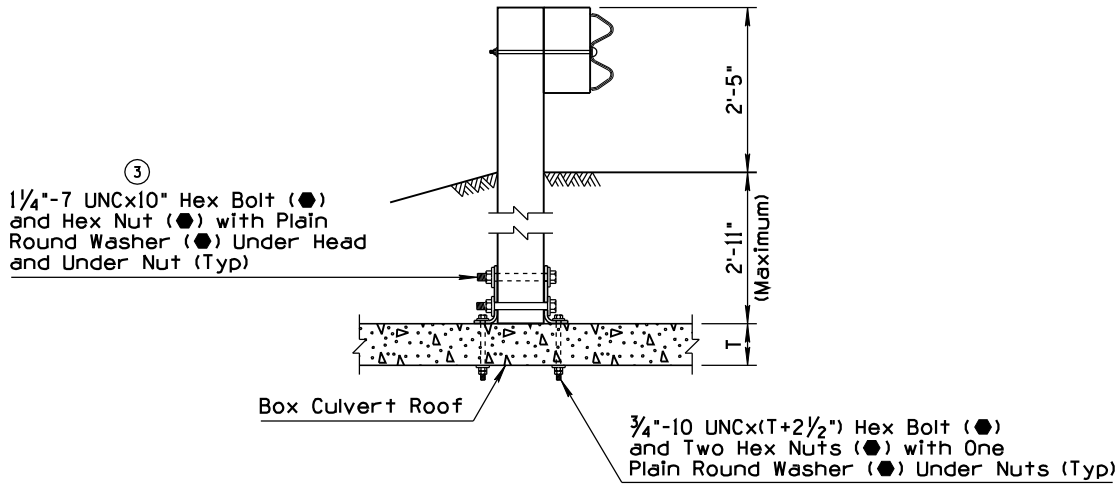
- 3
1. See Std Dwgs C-10.03 and C-10.04 for additional information and dimensions.
- 2
2. Guardrail shall be lapped in the direction of adjacent traffic.
- 72" Timber Post



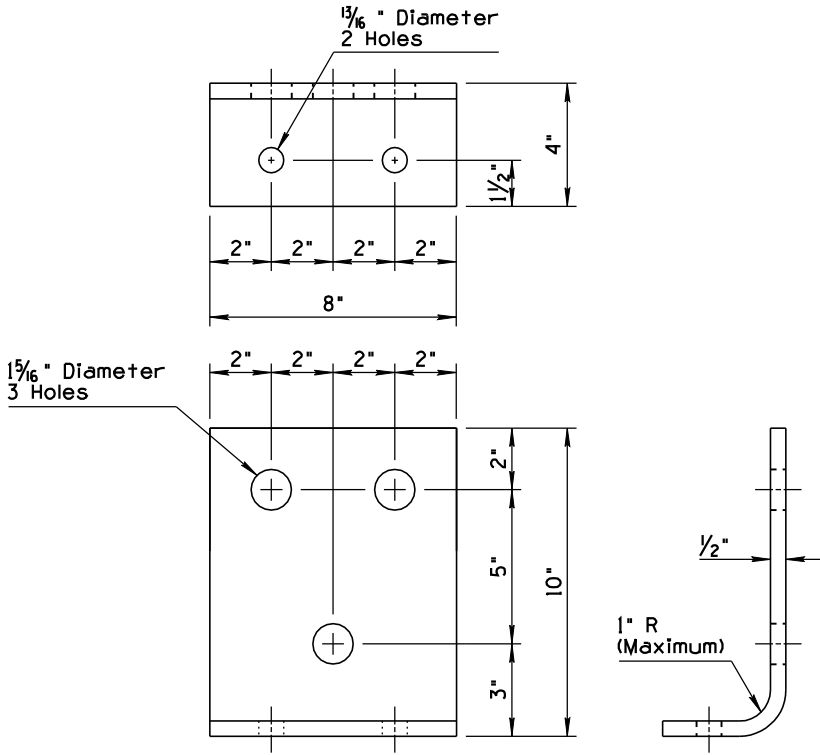
ELEVATION  
BOLTED ANCHOR  
BOX CULVERT INSTALLATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL BOLTED ANCHOR 1	DRAWING NO. C-10.07 1 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.29, 2 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED LENGTH	RLF	7/05
4			

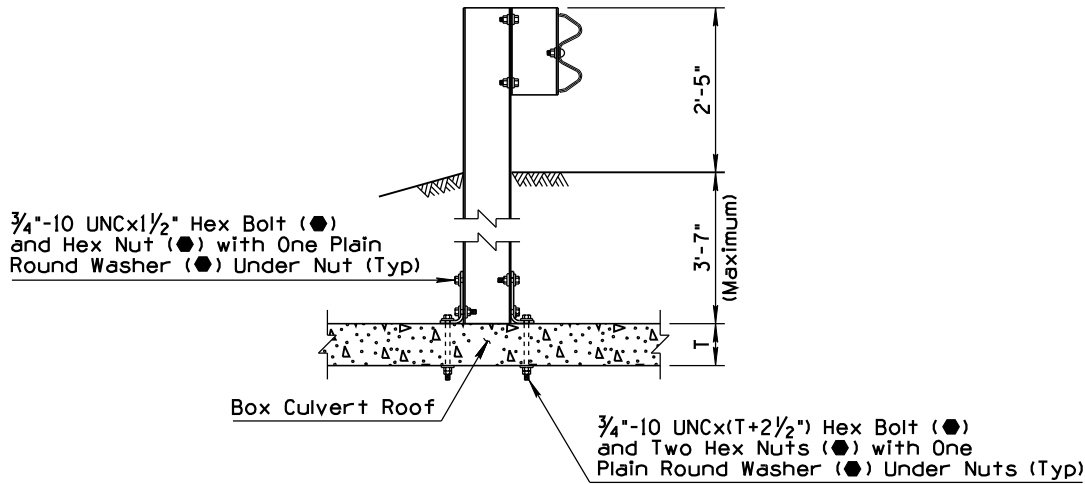


INSTALLATION DETAIL

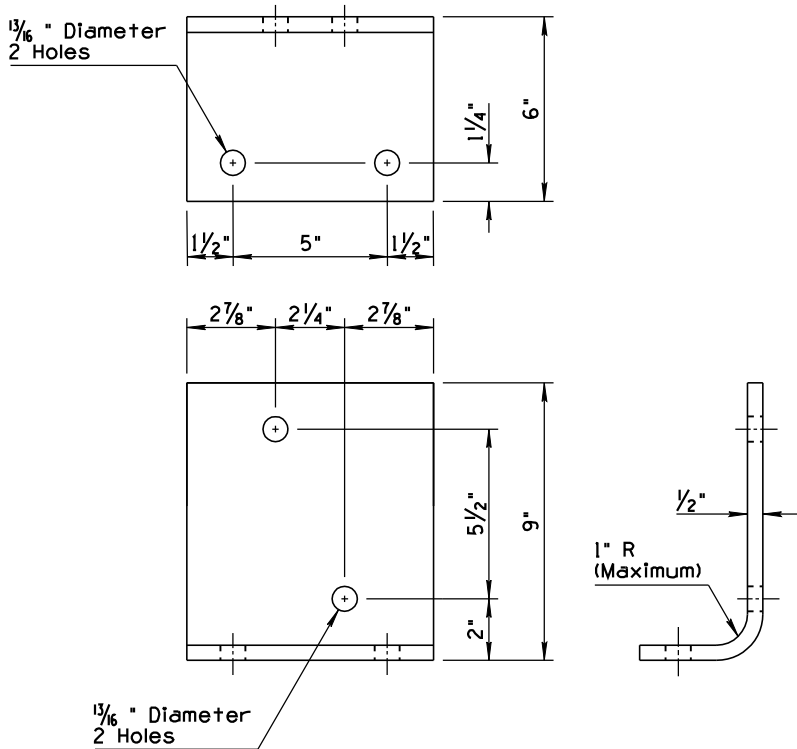


BRACKET DETAIL

BOLTED ANCHOR  
TIMBER POST INSTALLATION DETAIL



INSTALLATION DETAIL



BRACKET DETAIL

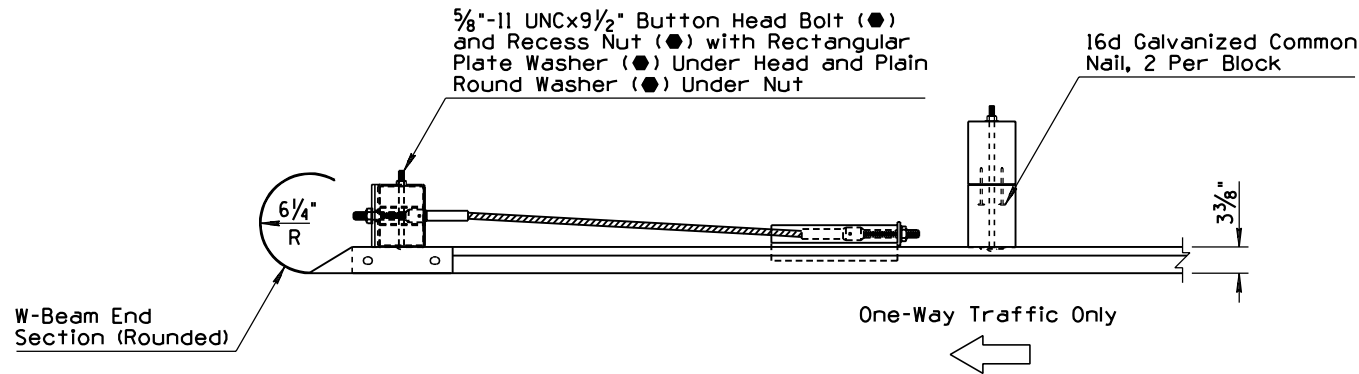
BOLTED ANCHOR  
STEEL POST INSTALLATION DETAIL

GENERAL NOTES

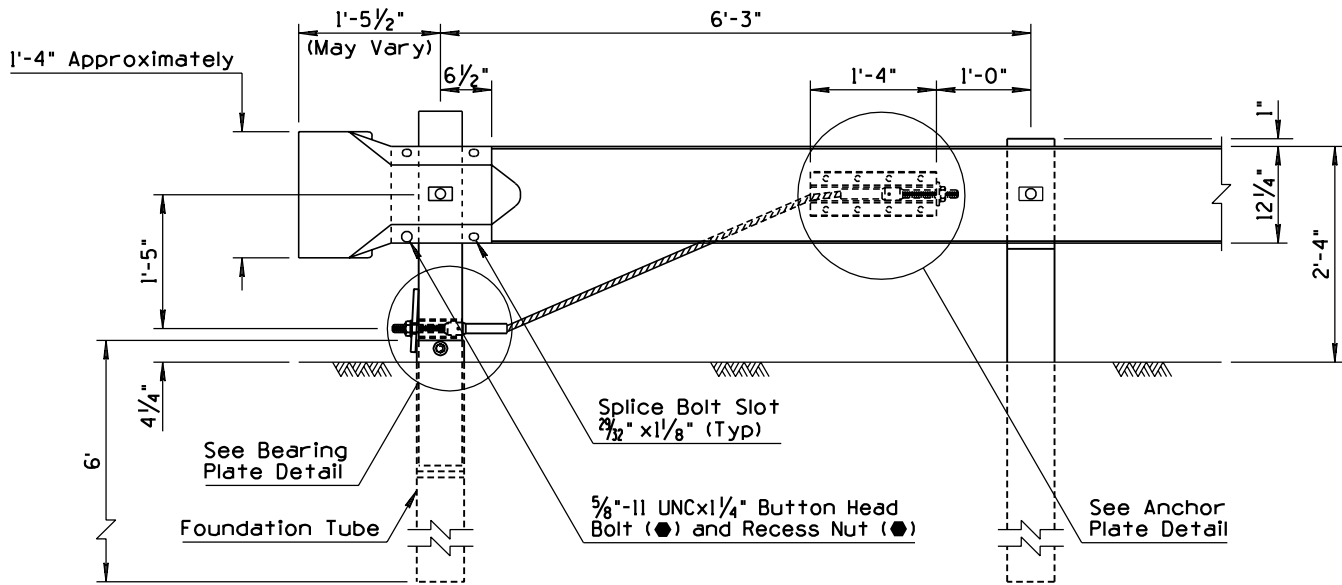
- Bracket may be made of one piece hot bent, or two pieces welded together.
  - Short timber posts anchored to box culvert roof shall be 8" x 8" only.
- ②    ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	W-BEAM GUARDRAIL BOLTED ANCHOR	DRAWING NO. ① C-10.07 Sheet 2 of 2

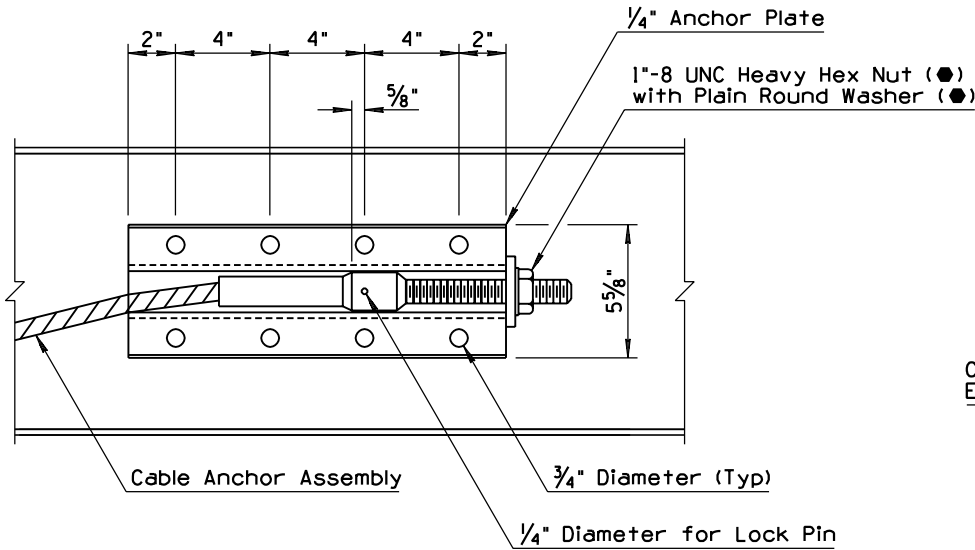
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.45 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED GENERAL NOTE 2	RLF	9/04
4			



PLAN

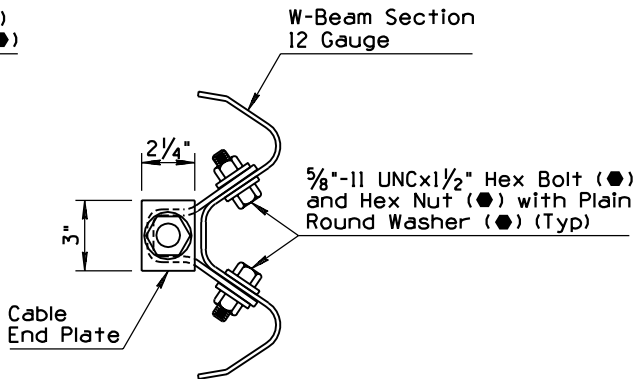


ELEVATION

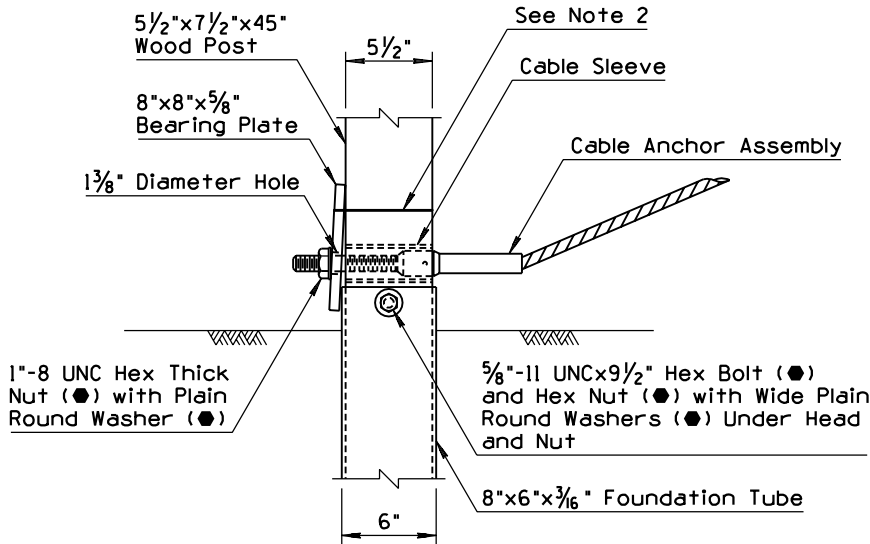


FRONT VIEW

ANCHOR PLATE DETAIL

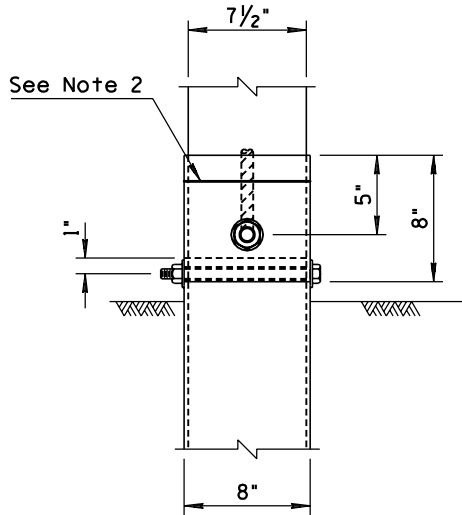


SIDE VIEW



FRONT VIEW

BEARING PLATE DETAIL



SIDE VIEW

## GENERAL NOTES

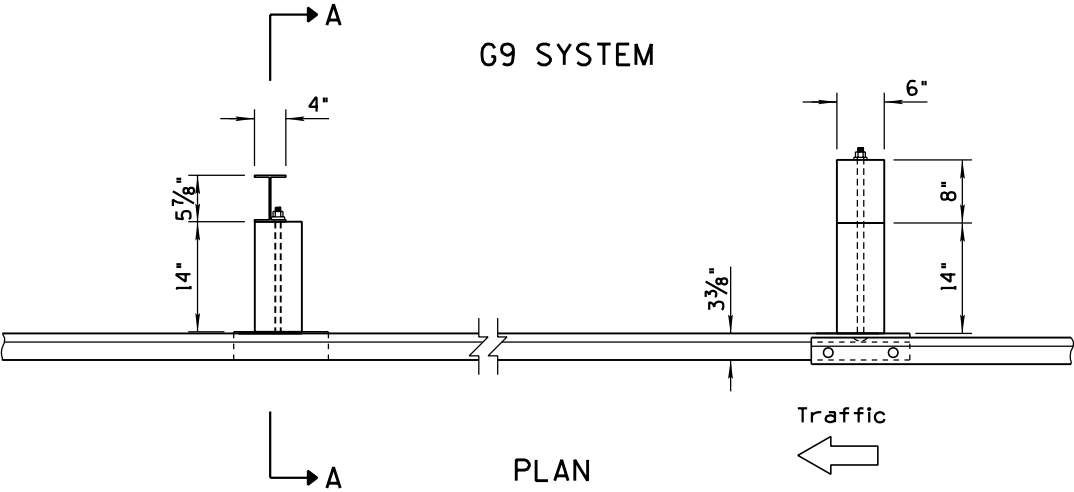
- The cable assembly shall be tightened to remove slack.
  - One wrap of 14 gauge galvanized steel wire shall be wrapped around the terminal post near the top of the bearing plate.
  - See Std Dwg C-10.00 for measurement limits.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	W-BEAM GUARDRAIL END ANCHOR ①	DRAWING NO. C-10.08 ①

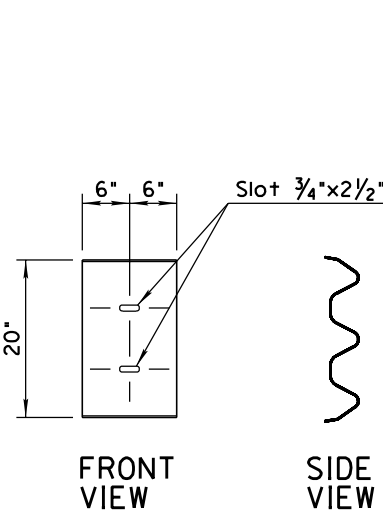
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.24 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED PLAN, ELEVATION & SECTION VIEWS	RLF	9/04
4			

GENERAL NOTES

- ② ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

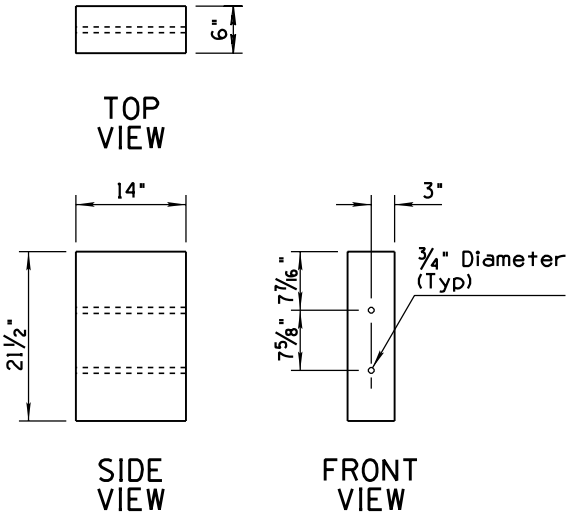


③



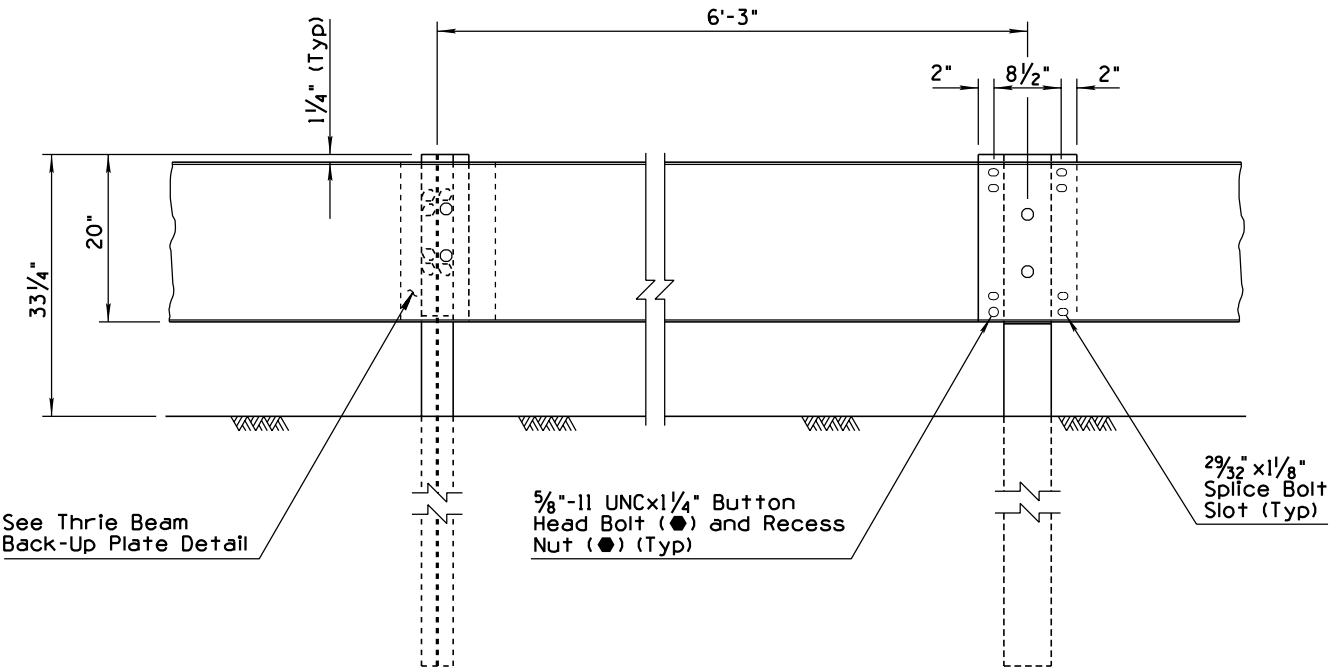
THRIE BEAM BACK-UP PLATE DETAIL

③



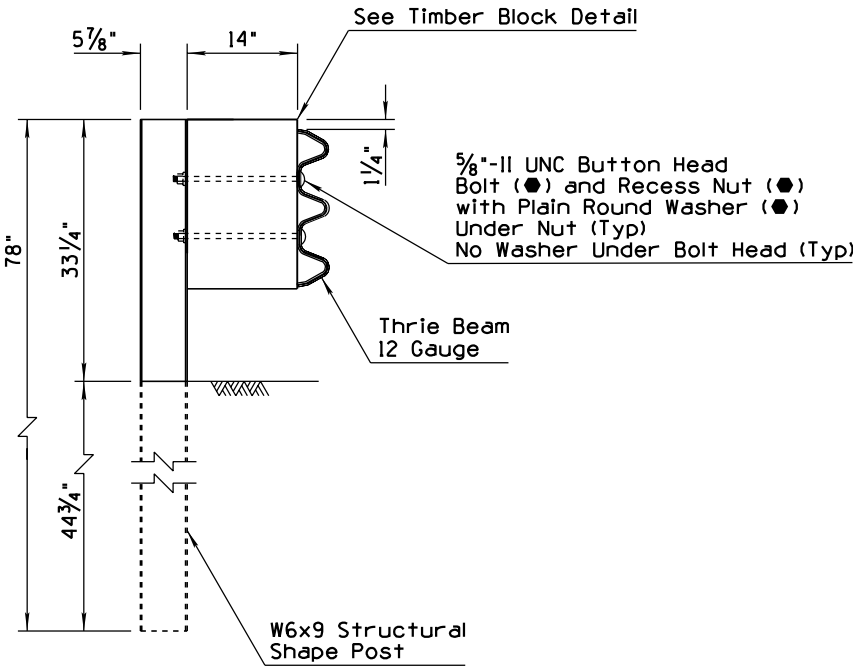
TIMBER BLOCK DETAIL

③



ELEVATION  
G9 SYSTEM

③

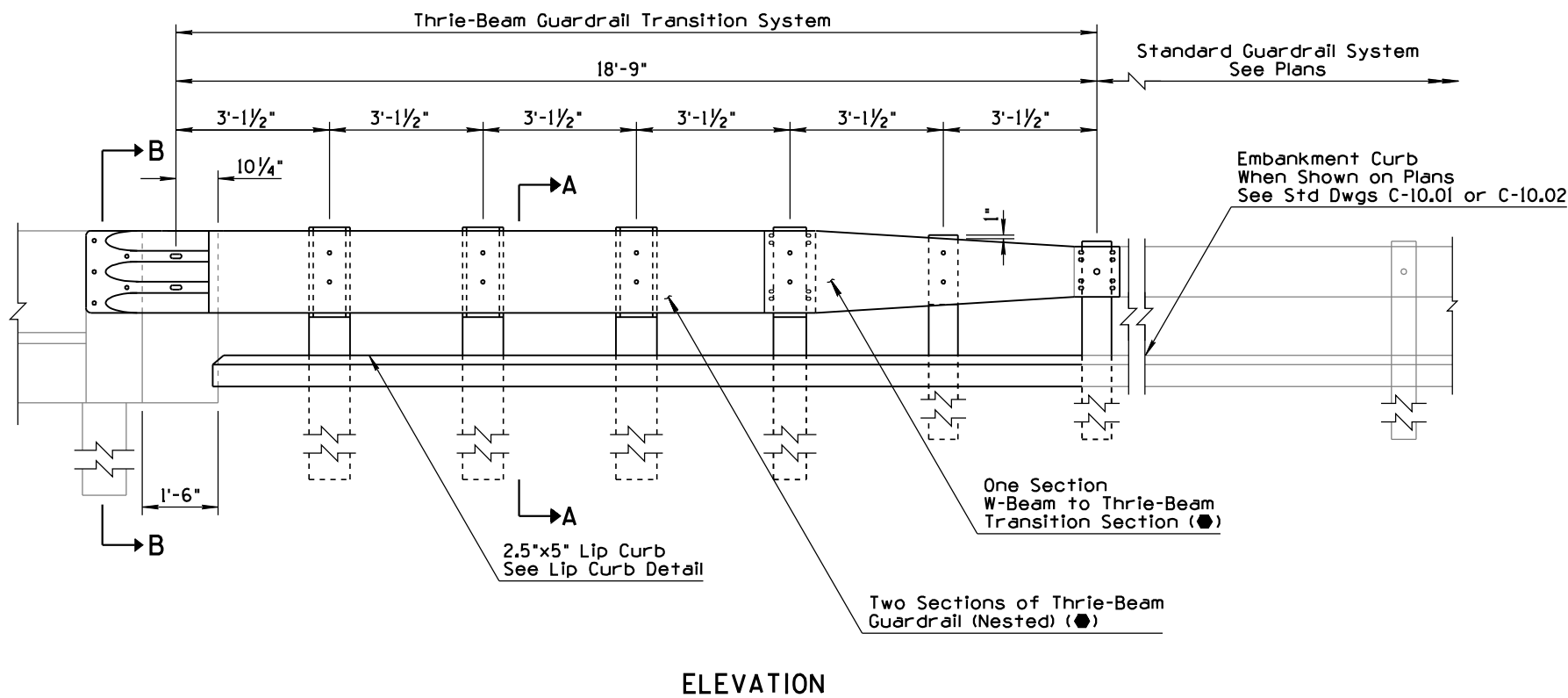
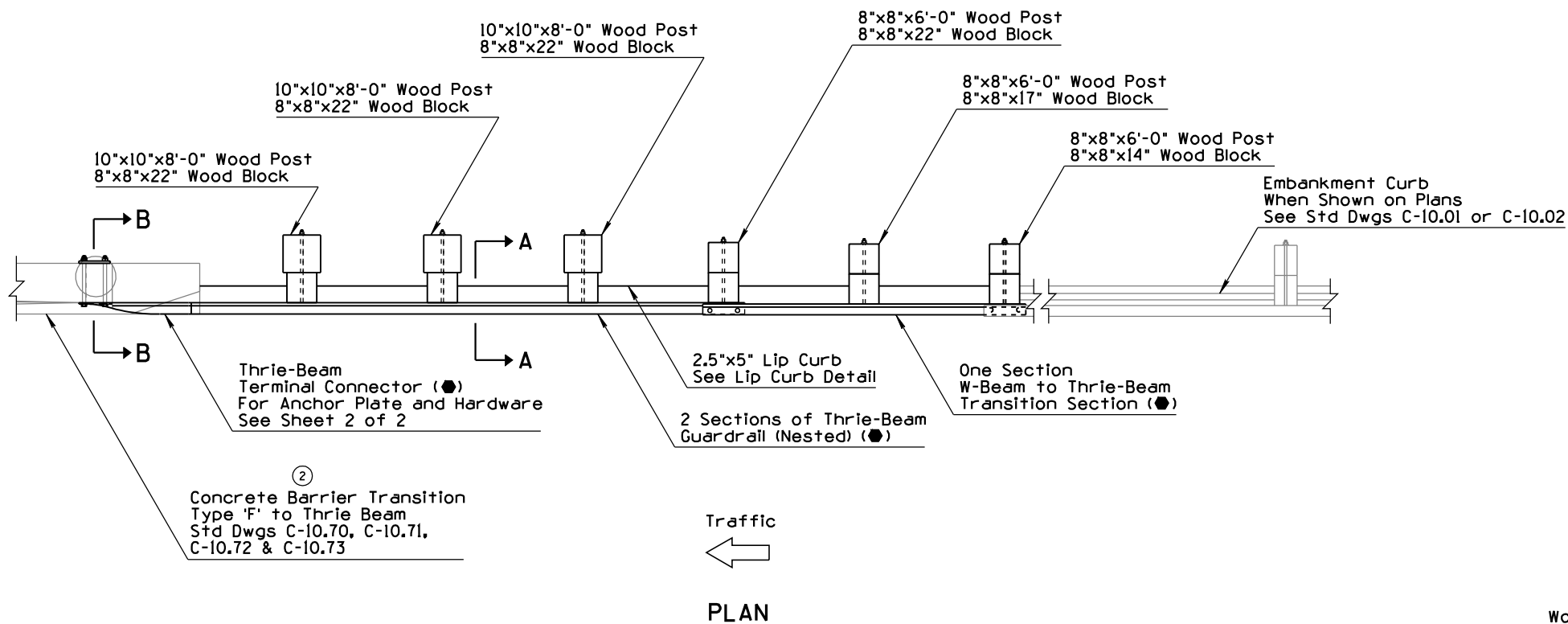


(G9) SECTION A-A

③

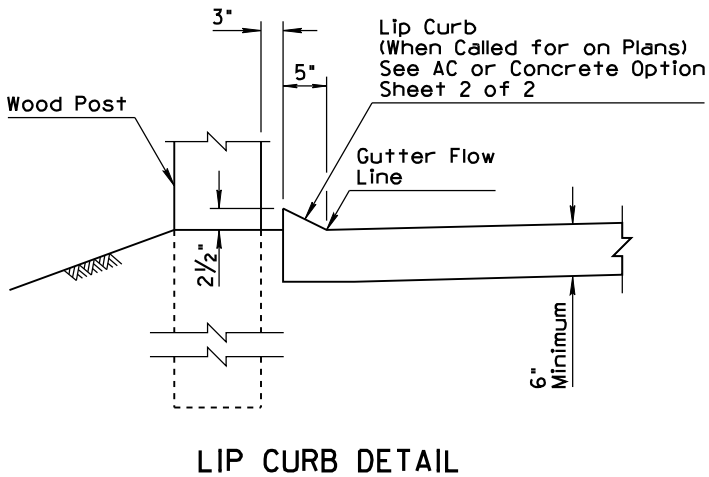
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	THRIE-BEAM GUARDRAIL G9 BLOCKED-OUT STEEL POST	DRAWING NO. ① C-10.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED (A325) REQUIREMENT	RLF	12/04
2	REVISED BARRIER TRANSITION CALLOUT	RLF	7/05
3	REISSUED AS STANDARD DRAWING C-10.30, SHEET 1 OF 2	RLF	7/05
4			



GENERAL NOTES

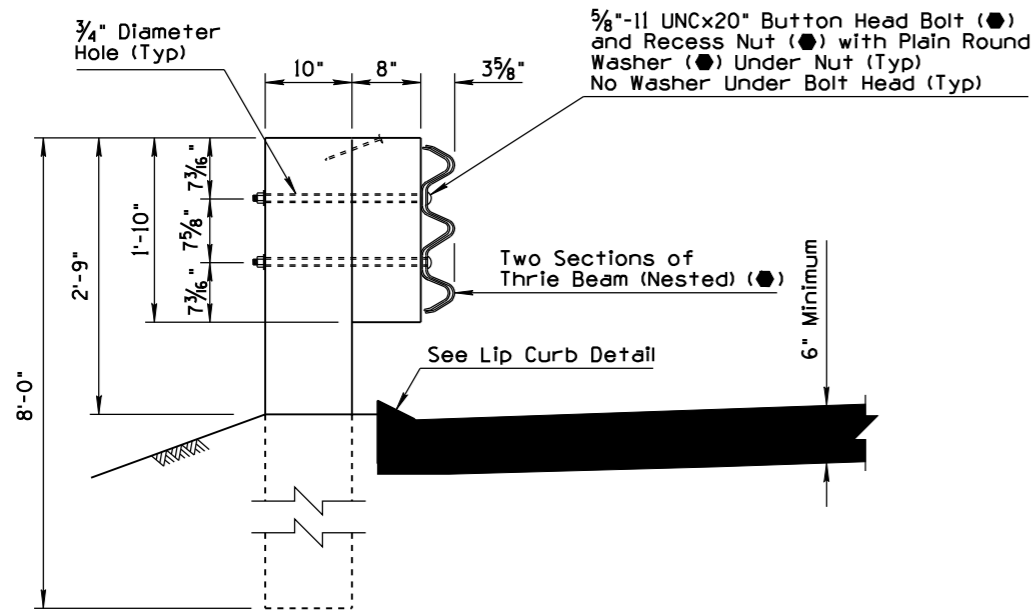
1. Curbing is not required when drainage flows transversely away from barrier.
  2. Treatment at back of lip curb modified for constructability purposes. Front slope and height of lip curb shall not be exceeded.
  3. Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent traffic.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



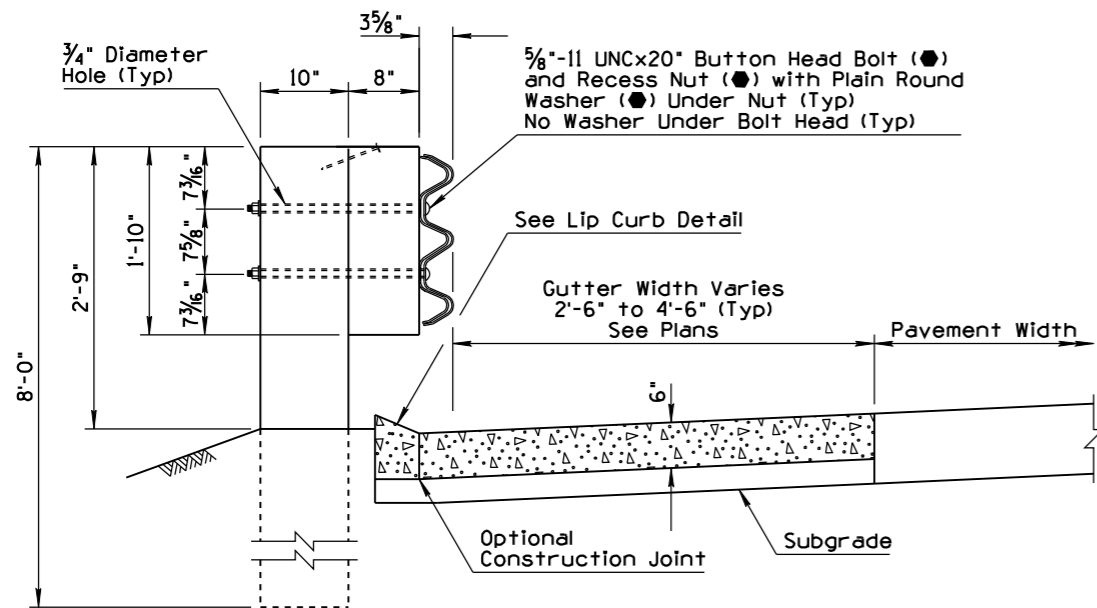
LIP CURB DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F'	DRAWING NO. ③ C-10.30 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DRAWING	RLF	7/05
2			
3			
4			

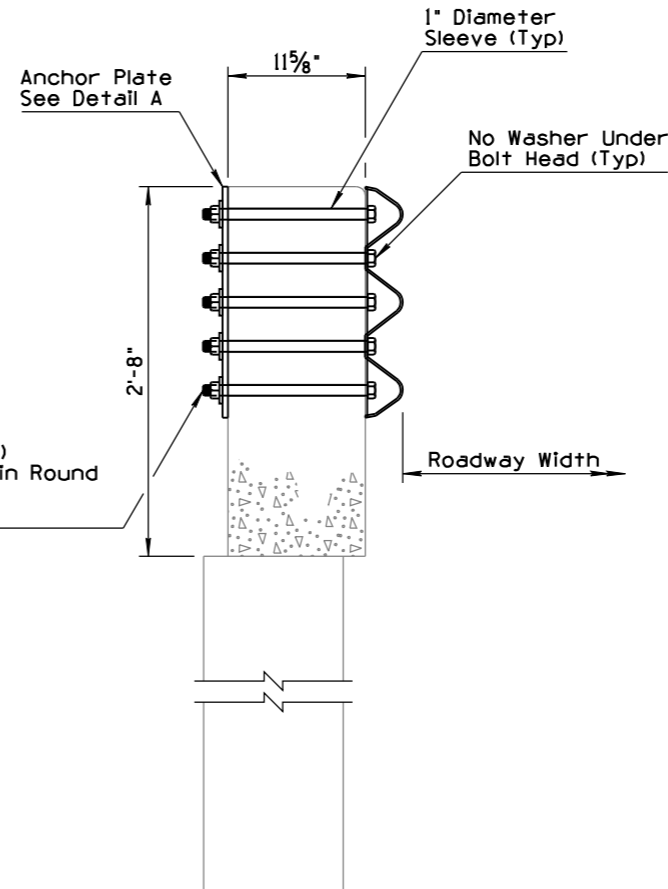


SECTION A-A  
AC OPTION

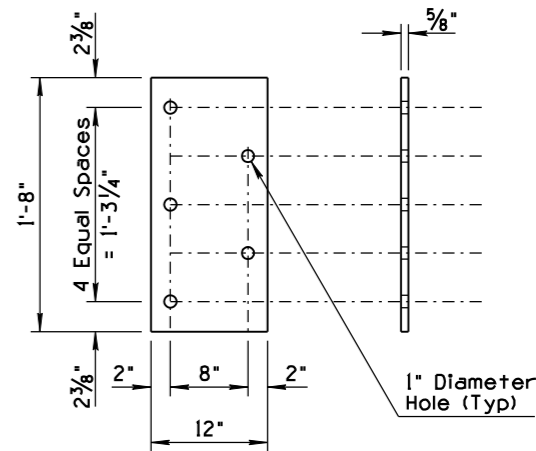


SECTION A-A  
CONCRETE OPTION

7/8"-9 UNCx14" Hex Bolt (A325) (●) and Hex Nut (A325) (●) with Plain Round Washer (●) (Under Nut) (Typ)  
5 Required



SECTION B-B



ANCHOR PLATE - DETAIL A

## GENERAL NOTES

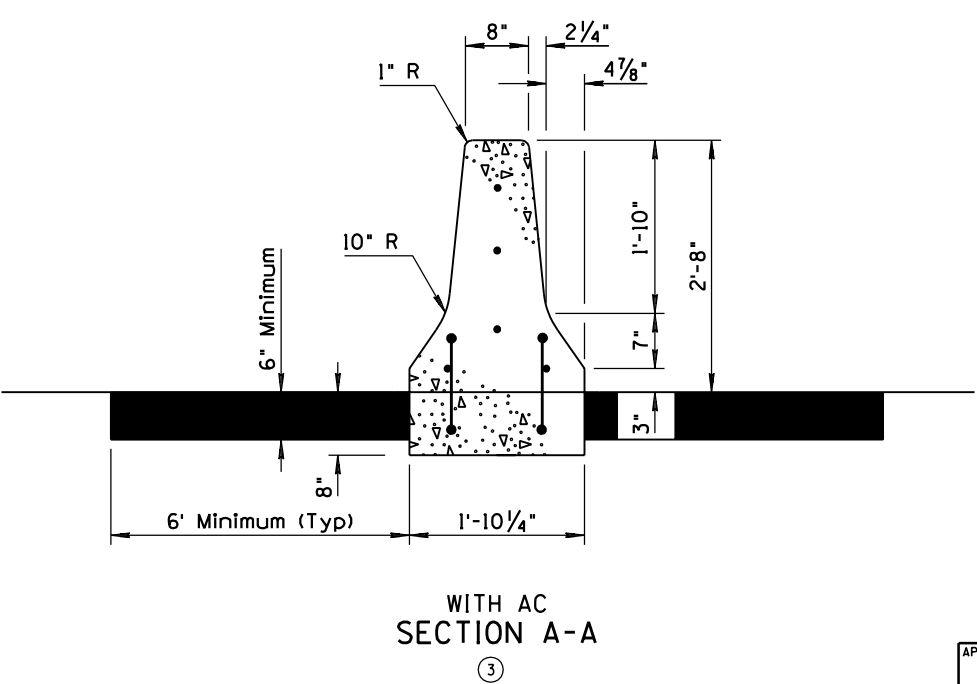
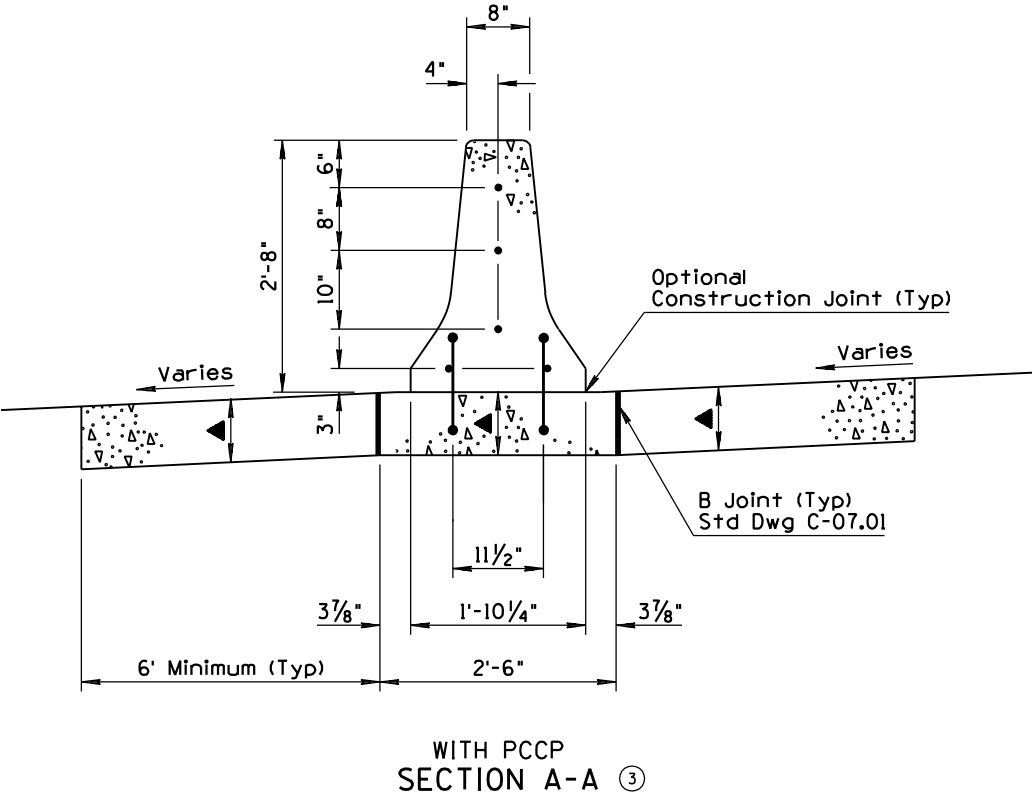
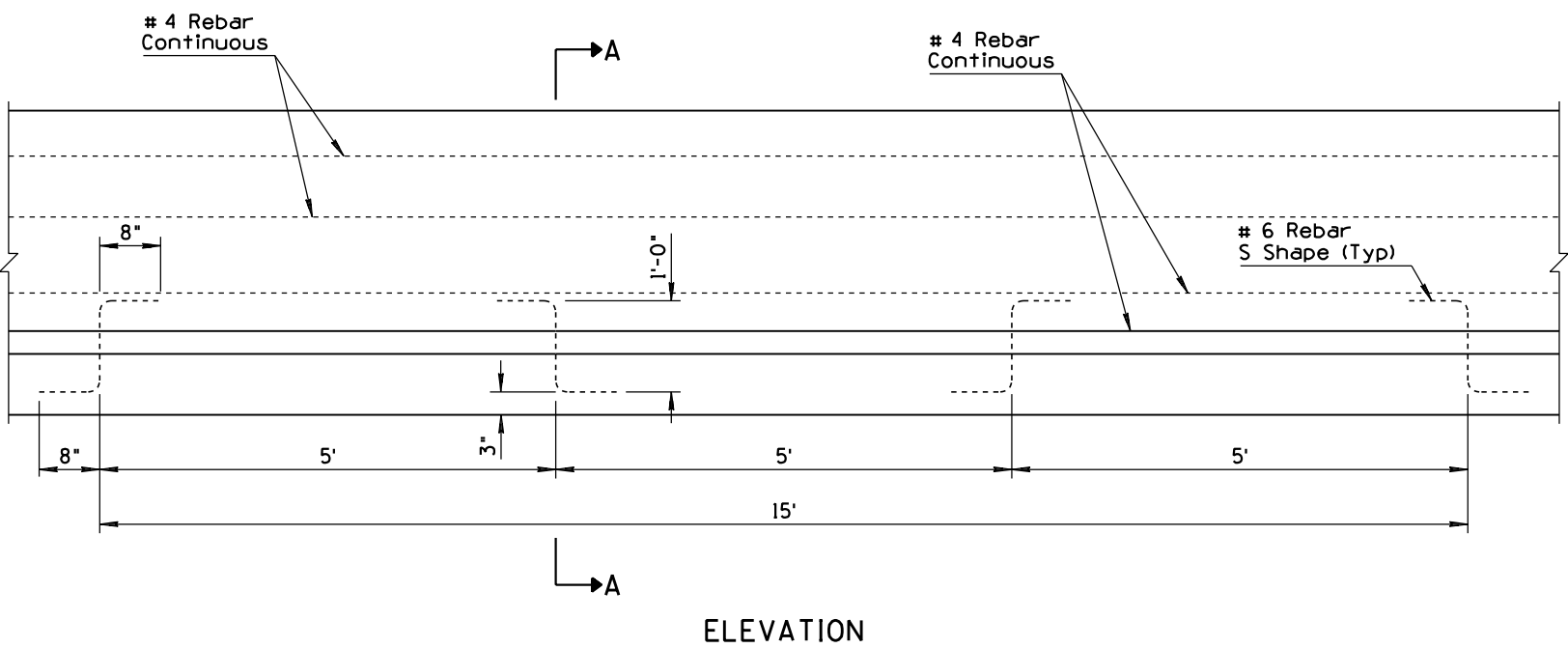
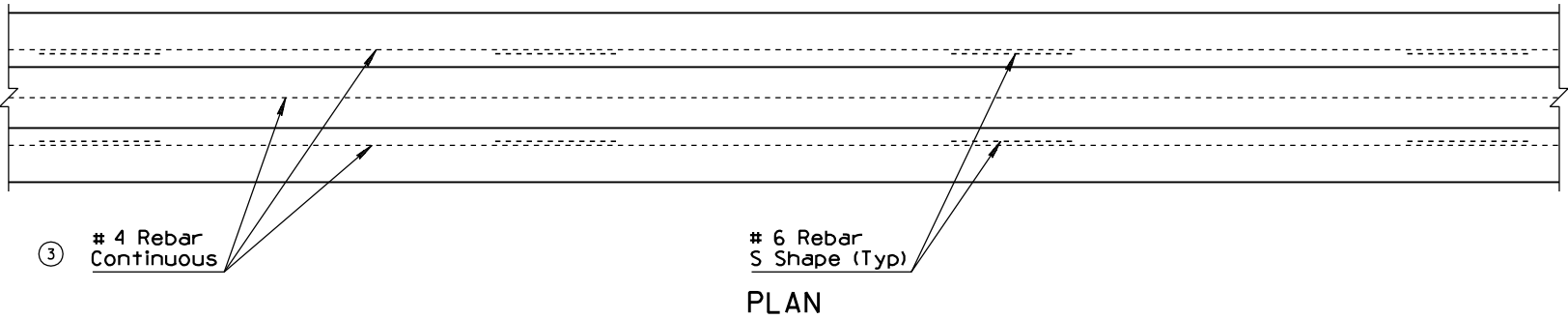
1. Anchor Plate shall conform to ASTM specification A36. Bolts, washers and Anchor Plate shall be galvanized or, at the contractors option, stainless steel bolts and washers may be used.
  2. Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	GUARDRAIL TRANSITION THRIE-BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F'	DRAWING NO. ① C-10.30 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG C-10.66 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 3	RLF	9/04
3	RELOCATED ▀ 4 REBARS	RLF	9/04
4			

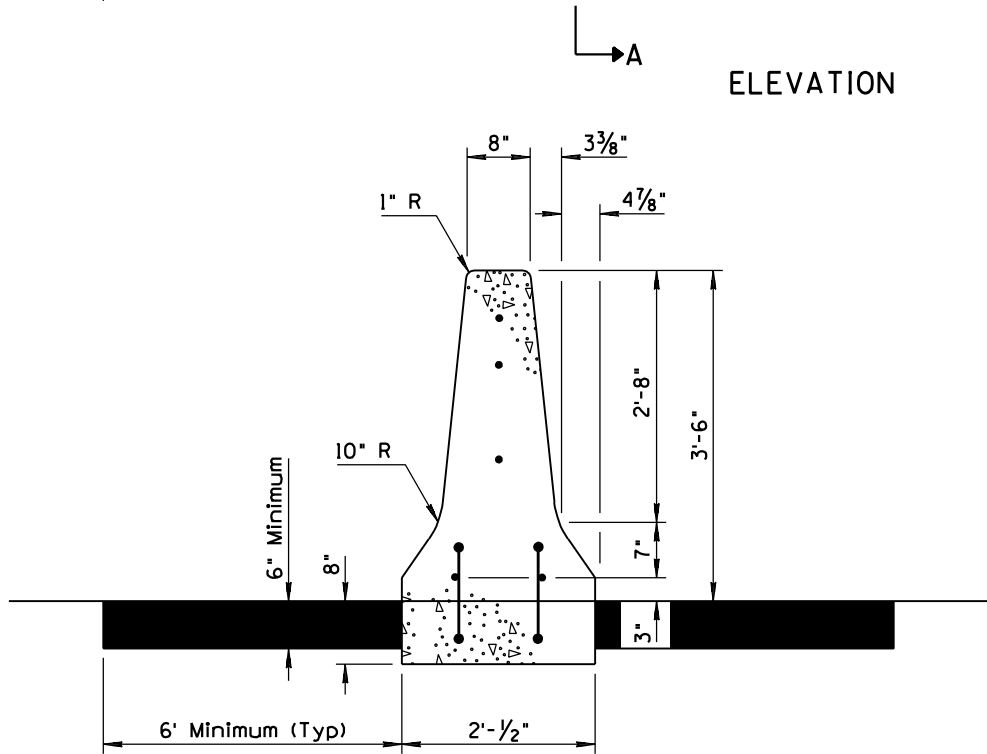
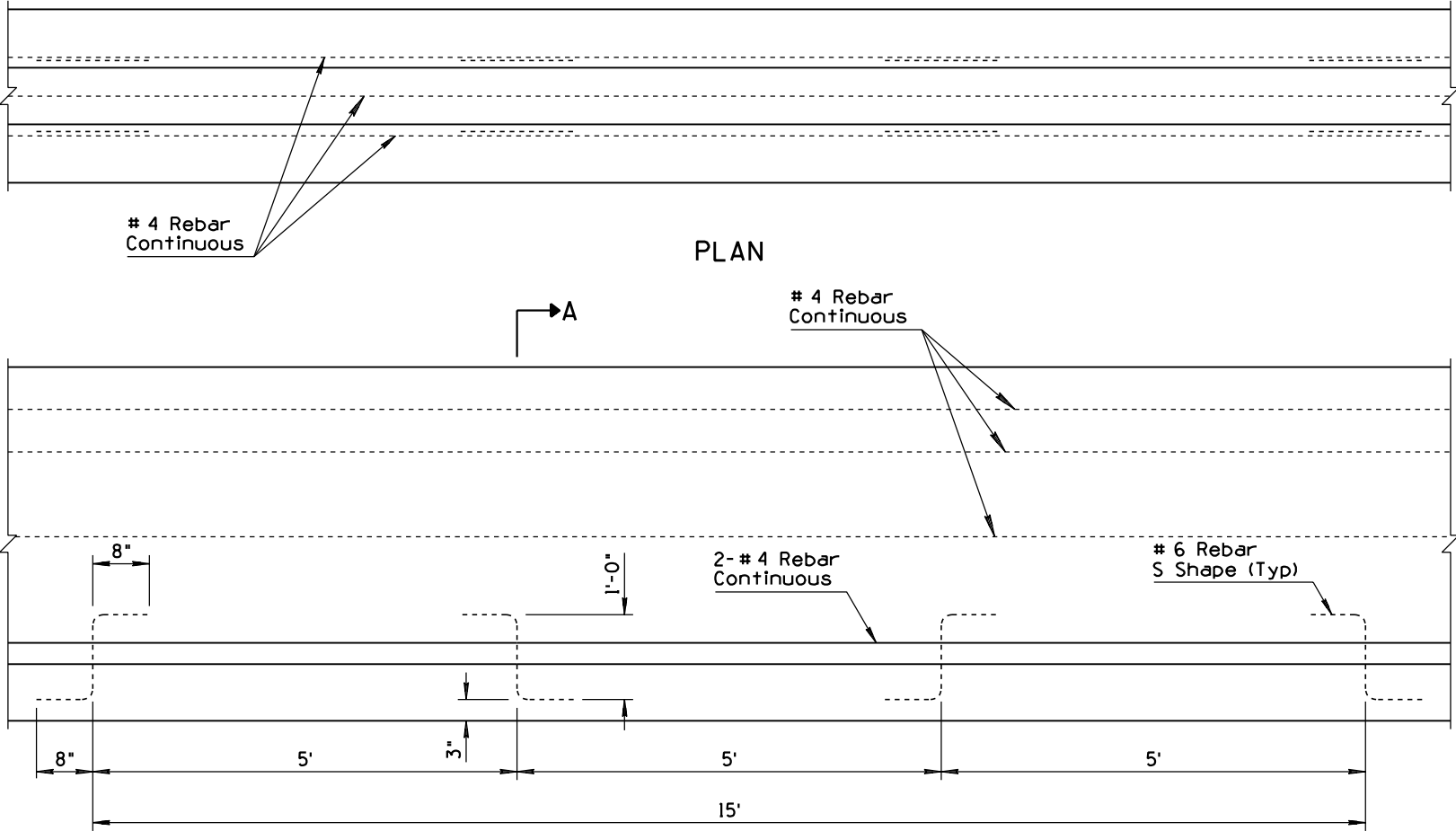
GENERAL NOTES

- Median Barrier shall be constructed by the slip form or formed cast-in-place method.
  - When obstacles prevent the use of slip form equipment, stationary forms shall be used.
  - Concrete shall be Class S,  $f'_c=4000$  PSI.
  - If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
  - Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
  - # 4 Rebar shall extend 12" past the construction joint at the completion of the day's pour.
- ▲ Depth to match adjacent PCCP thickness (8" minimum).



APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE MEDIAN BARRIER 32" TYPE 'F' CAST-IN-PLACE 1	DRAWING NO. C-10.40 1

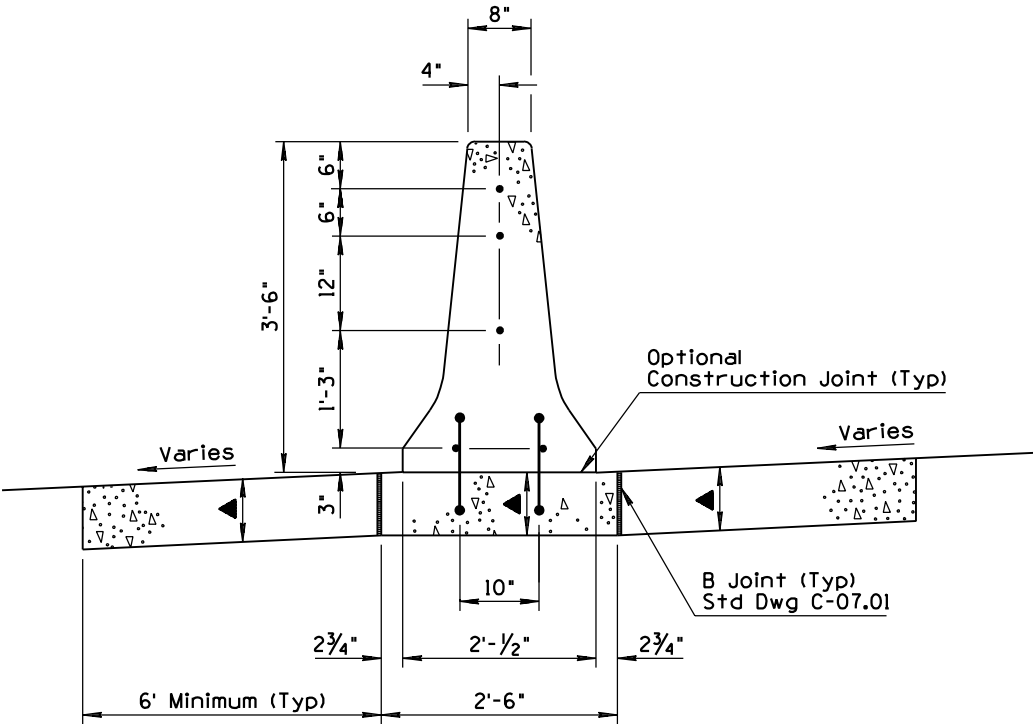
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2	REVISED GENERAL NOTE 3	RLF	9/04
3	RELOCATED ▀ 4 REBARS	RLF	9/04
4			



WITH AC  
SECTION A-A ③

GENERAL NOTES

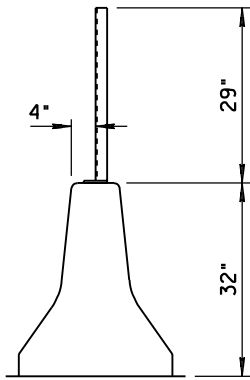
- Median Barrier shall be constructed by the slip form or by the formed cast-in-place method.
- When obstacles prevent the use of slip form equipment, stationary forms shall be used.
- ② Concrete shall be Class S,  $f'_c=4000$  PSI.
- If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
- Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
- #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
- ▲ Depth to match adjacent PCCP thickness (8" minimum).



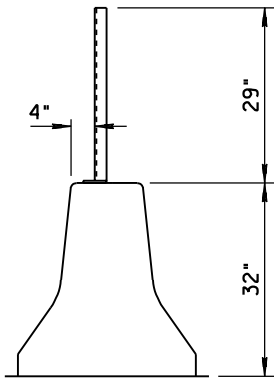
WITH PCCP  
SECTION A-A ③

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	CONCRETE MEDIAN BARRIER 42" TYPE 'F' CAST-IN-PLACE ①	DRAWING NO. C-10.41 ①

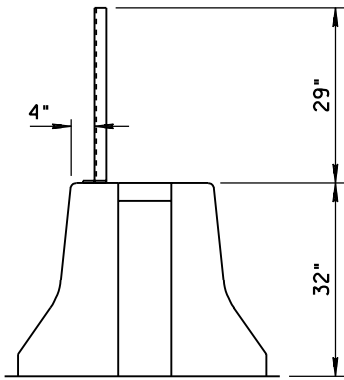
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD DRAWING FROM C-10.97, SHEET 1 OF 3	RLF	10/04
2			
3			
4			



GLARE SCREEN  
INSTALLATION ON  
STANDARD MEDIAN BARRIER



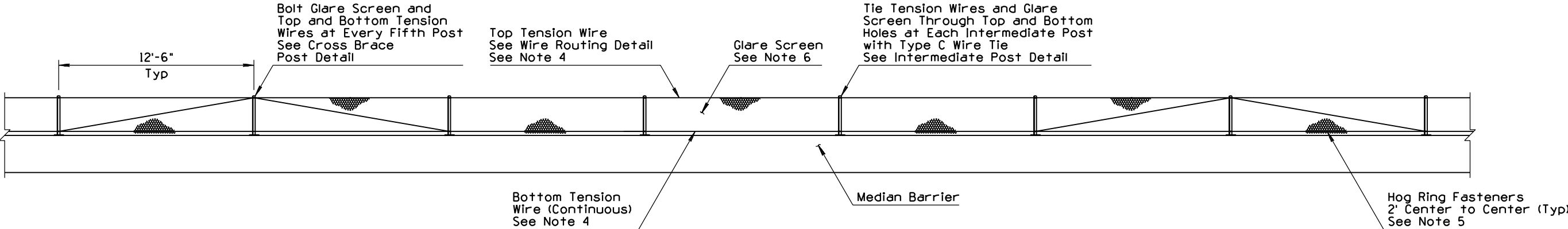
GLARE SCREEN  
INSTALLATION ON  
MEDIAN BARRIER TRANSITION



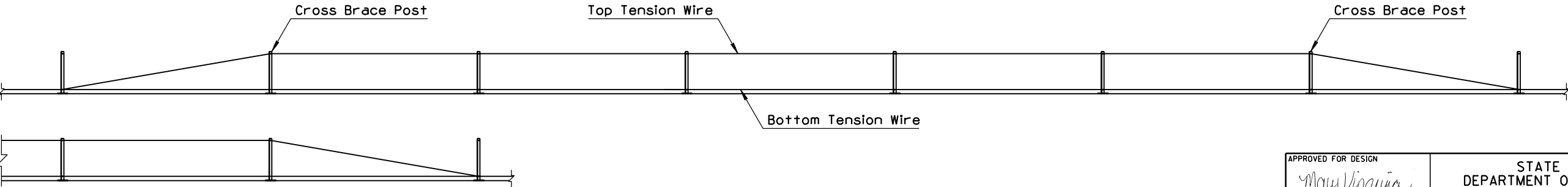
GLARE SCREEN  
INSTALLATION ON  
HALF BARRIER AT BRIDGE PIER

GENERAL NOTES

1. Posts shall be 12'-6" Center to Center. Structural steel shall conform to ASTM A36, galvanized in conformance with ASTM A123.
2. Hex head bolt shall conform to ASTM A307, galvanized in conformance with ASTM A153 Class C.
3. Helical spring lock washer shall conform to ASTM A313, galvanized in conformance with ASTM A153 Class C.
4. Tension wire: AWG number 9(0.148") galvanized in conformance with ASTM A116 Class 2.
5. Hog ring: AWG number 12 (0.105") galvanized in conformance with ASTM A116 Class 2. Fasten glare screen to top and bottom tension wire spaced approximately 2' apart.
6. Glare Screen: 18 gauge steel, ASTM A526, galvanized in accordance with ASTM A525/G235, expanded to the following dimensions: 1.33" shortway of diamond and 4.0" longway of diamond (center to center of bridges) with a strand width of 0.250" angled at approximately 20° to the plane of the original sheet. Top edge to be shop curled and crimped on 12" center to center. Glare screen shall be installed such that flat portion of screen blocks light from headlights. See Direction Detail.
7. Splices allowed in glare screen at posts only, with one full diamond overlap.
8. Glare screen shall be constructed without interruption to the greatest degree possible.



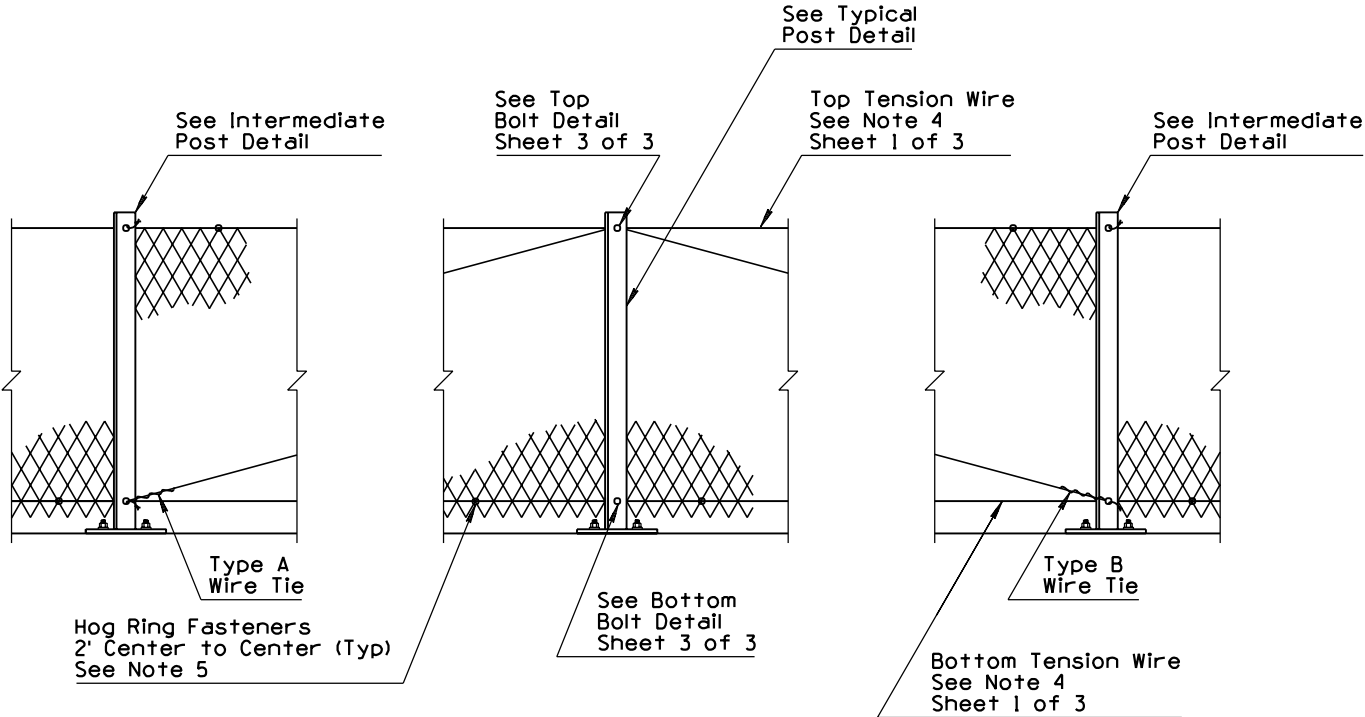
ELEVATION



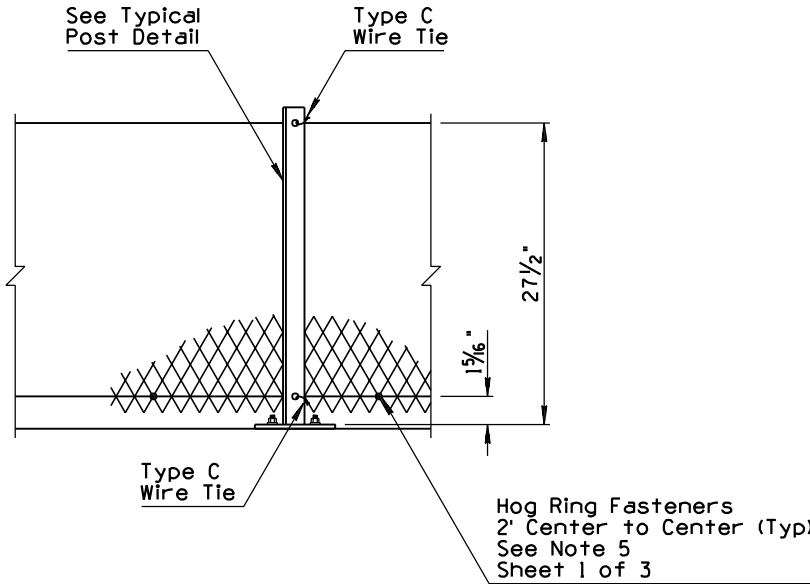
TENSION WIRE ROUTING DETAIL

APPROVED FOR DESIGN <i>May Viana</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 10/04
APPROVED FOR DISTRIBUTION <i>Julia</i>	1 GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. 1 C-10.42 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED FROM STANDARD DRAWING C-10.97, SHEET 2 OF 3	RLF	9/04
2			
3			
4			

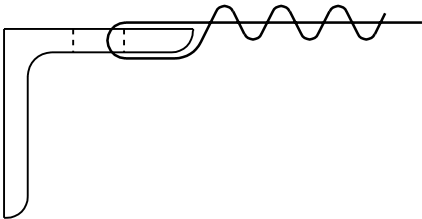


CROSS BRACE POST DETAIL

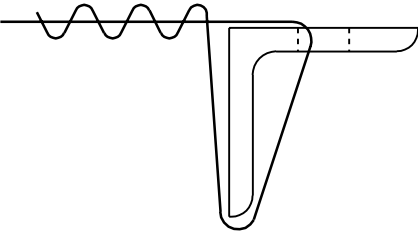


INTERMEDIATE POST DETAIL

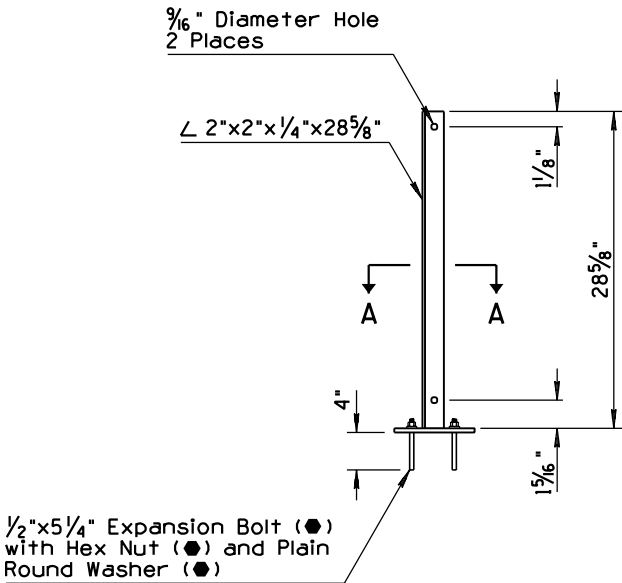
① ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



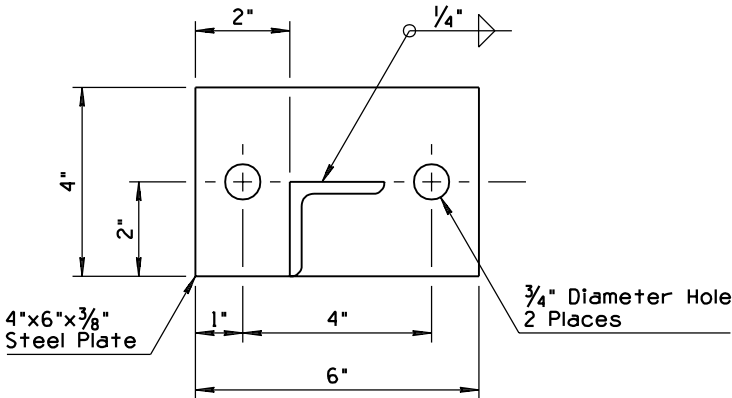
TYPE A WIRE TIE



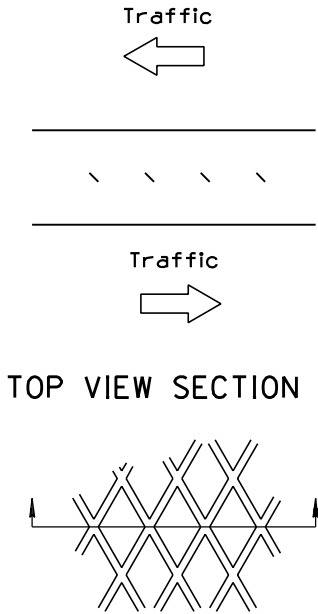
TYPE B WIRE TIE



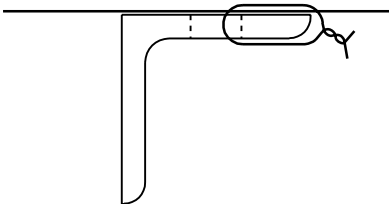
TYPICAL POST DETAIL



SECTION A-A



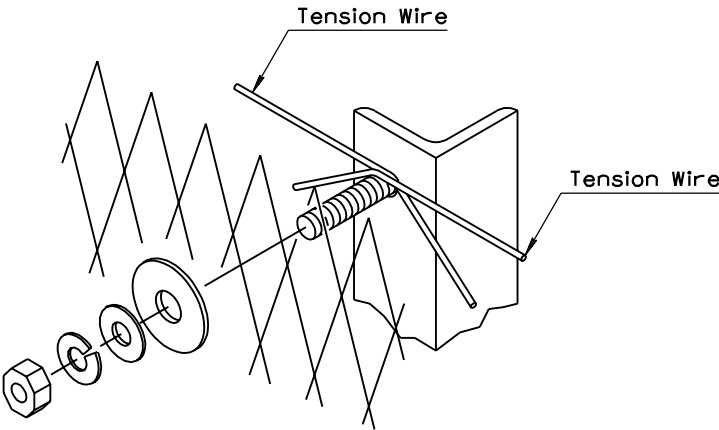
DIRECTION DETAIL



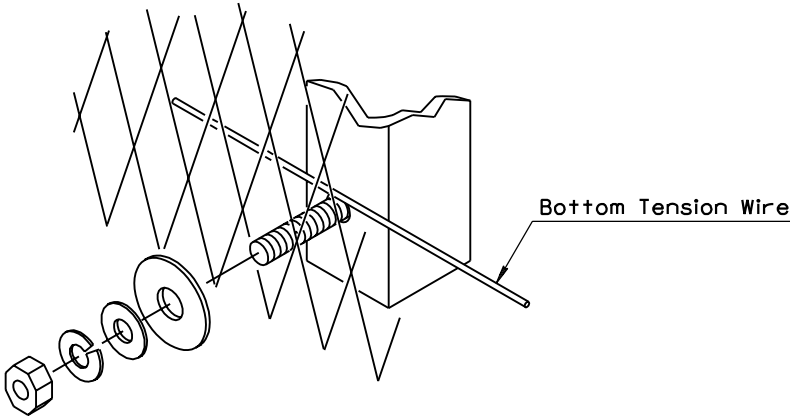
TYPE C WIRE TIE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. C-10.42 ① Sheet 2 of 3

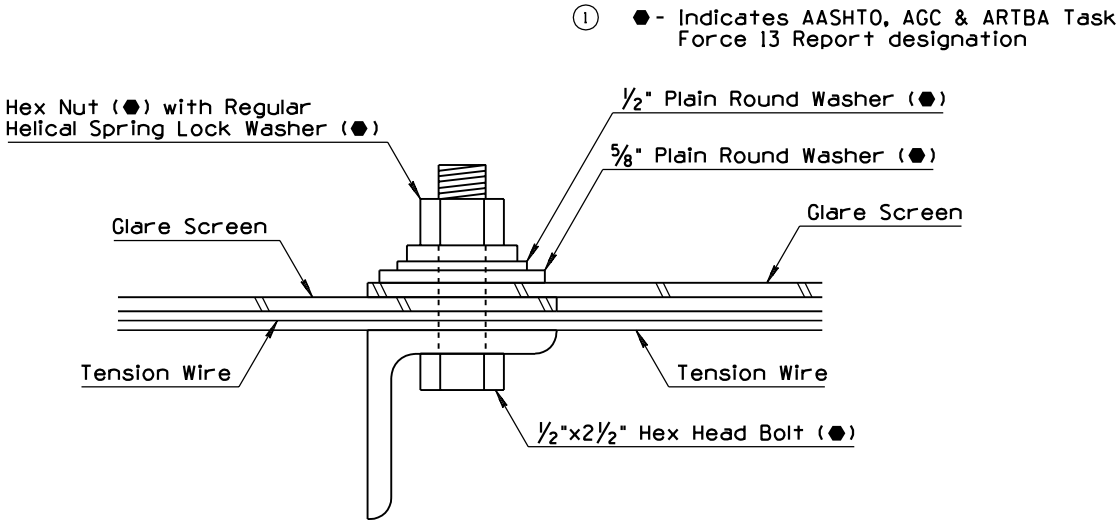
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMES STANDARD DRAWING FROM C-10.97, SHEET 3 OF 3	RLF	9/04
2			
3			
4			



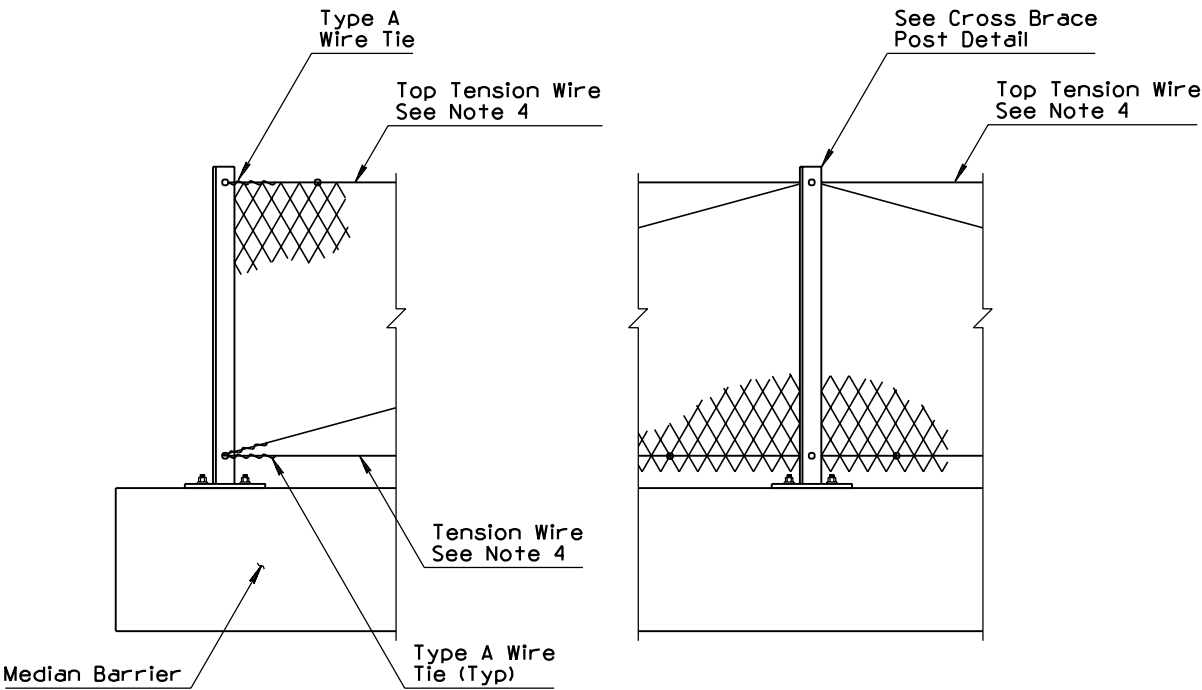
TOP BOLT DETAIL



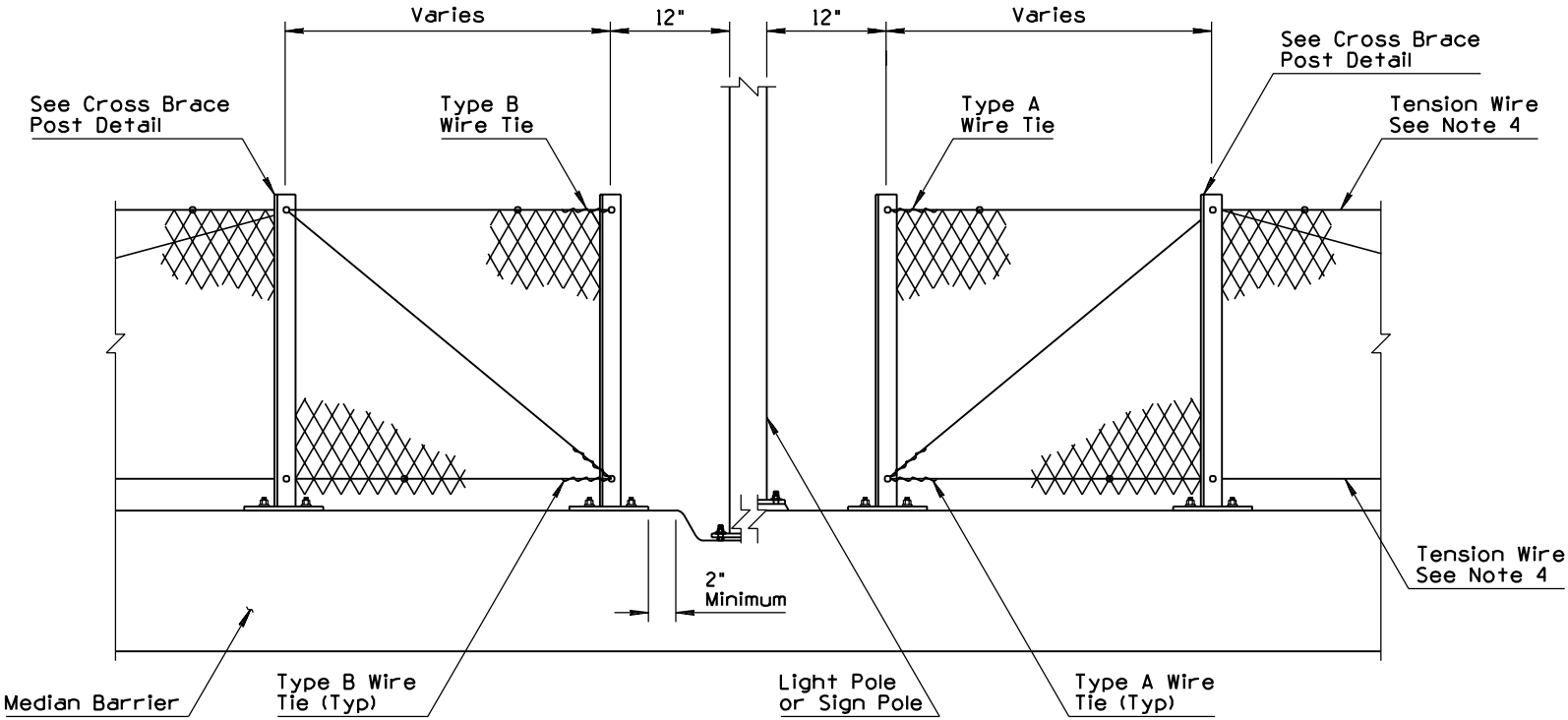
BOTTOM BOLT DETAIL



TOP BOLT SECTION



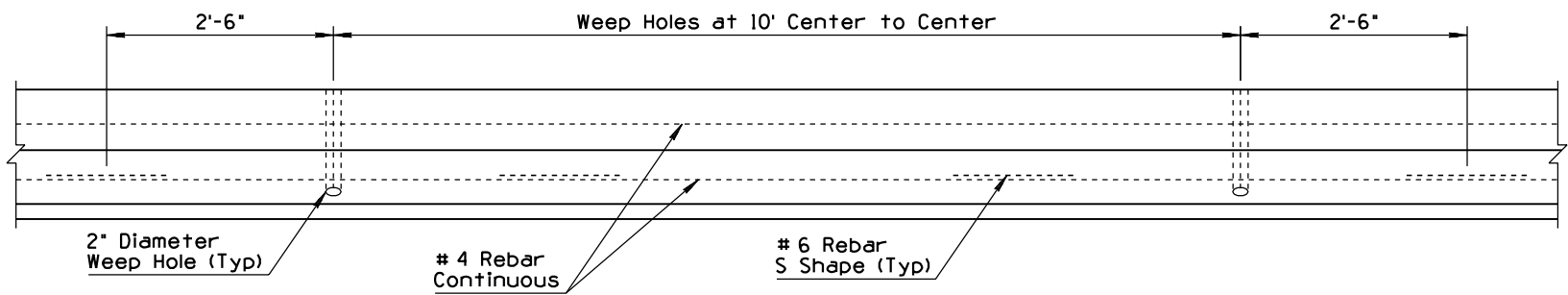
TERMINATION DETAIL



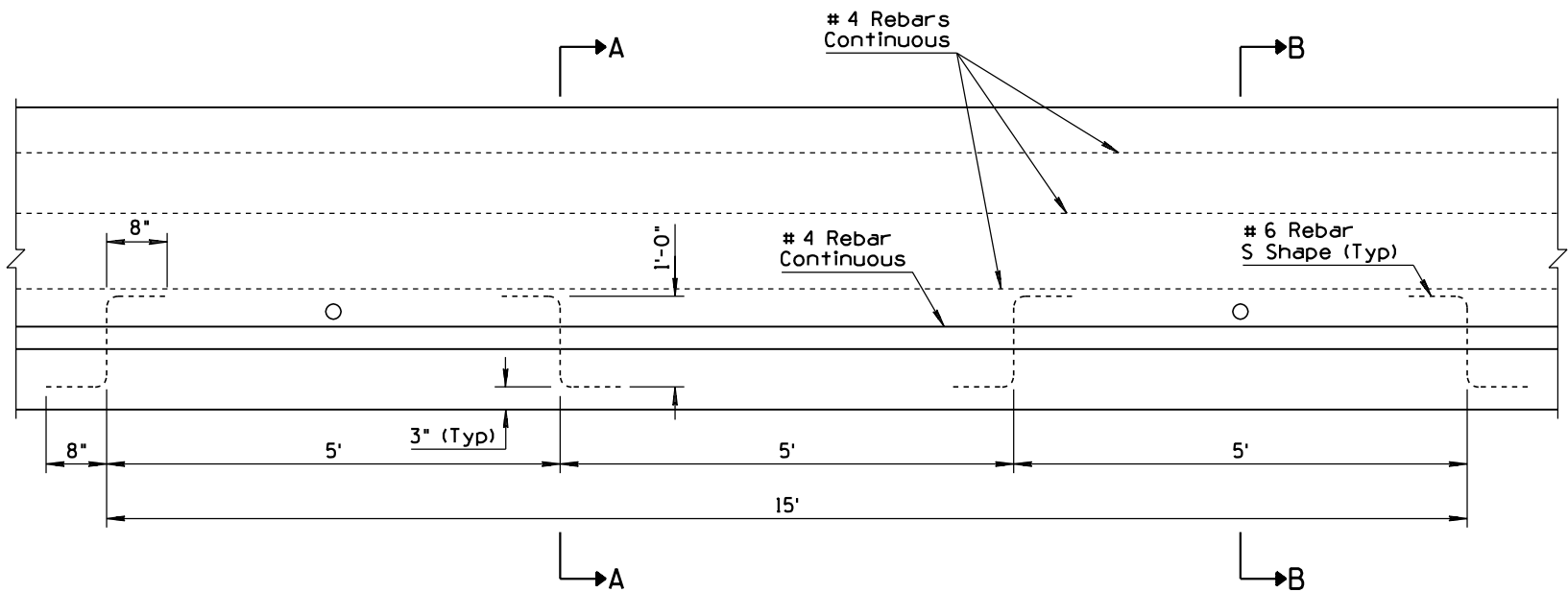
OBSTRUCTION DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	GLARE SCREEN CONCRETE MEDIAN BARRIER	DRAWING NO. ① C-10.42 Sheet 3 of 3

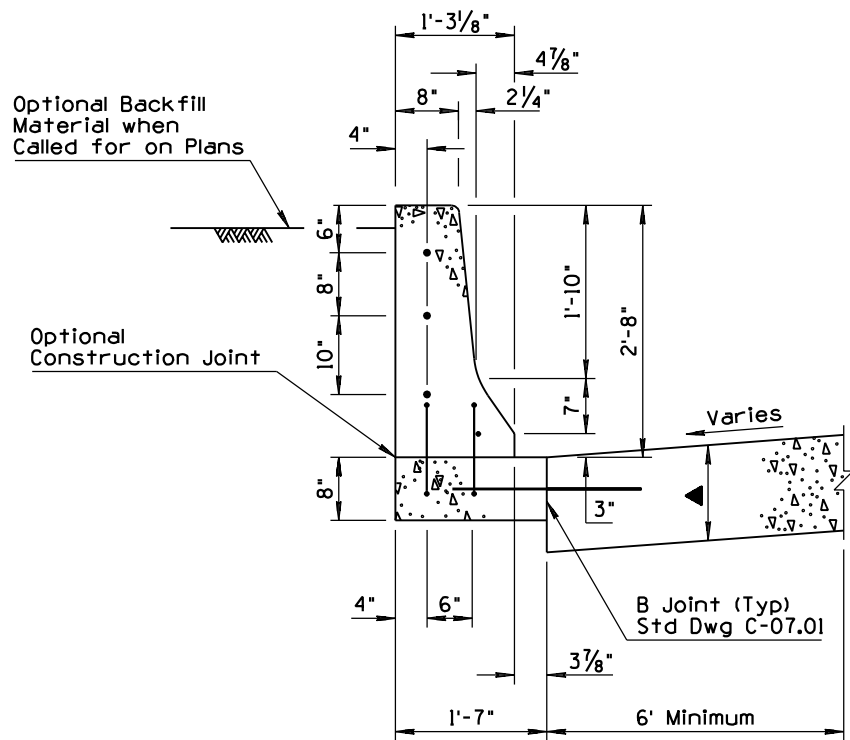
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			



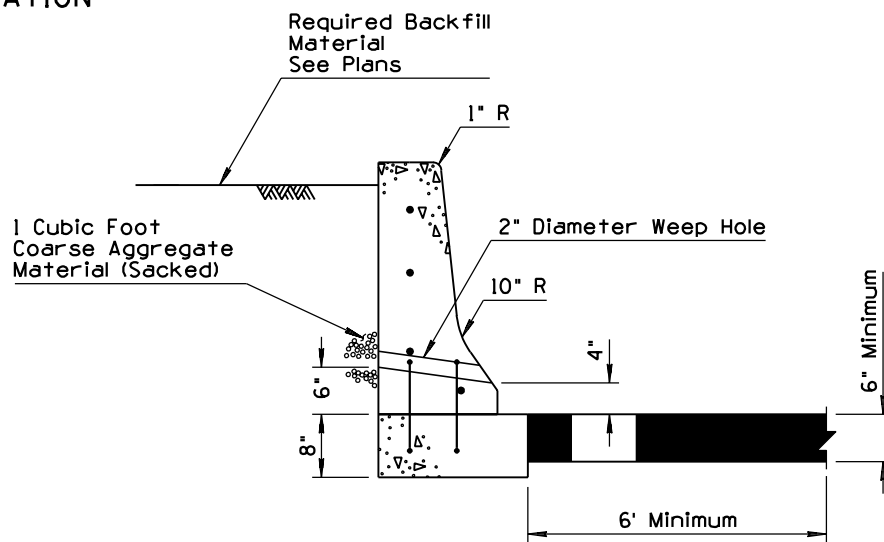
PLAN



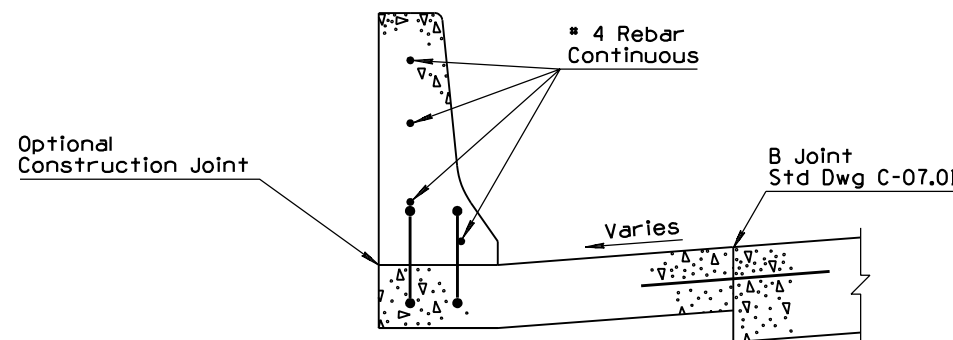
ELEVATION



WITH PCCP  
SECTION A-A



WITH AC  
SECTION B-B  
SEE SECTION A-A FOR  
TYPICAL REBAR PLACEMENT



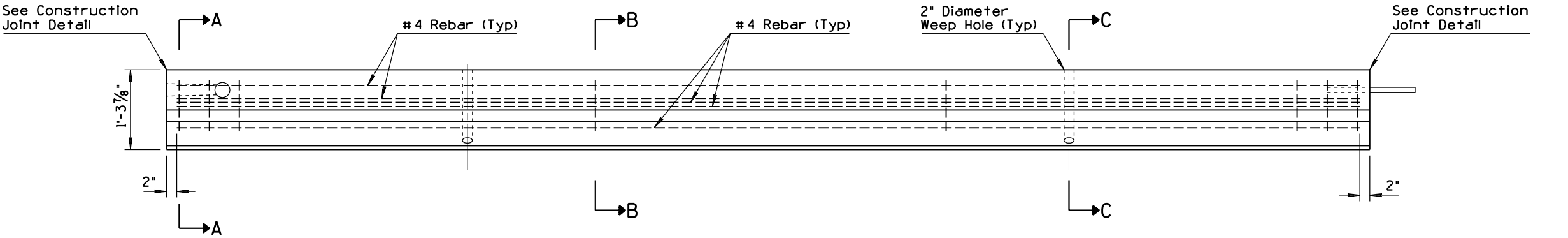
WITH PCCP  
BARRIER WITH GUTTER  
(SEE STD DWG C-10.52)

GENERAL NOTES

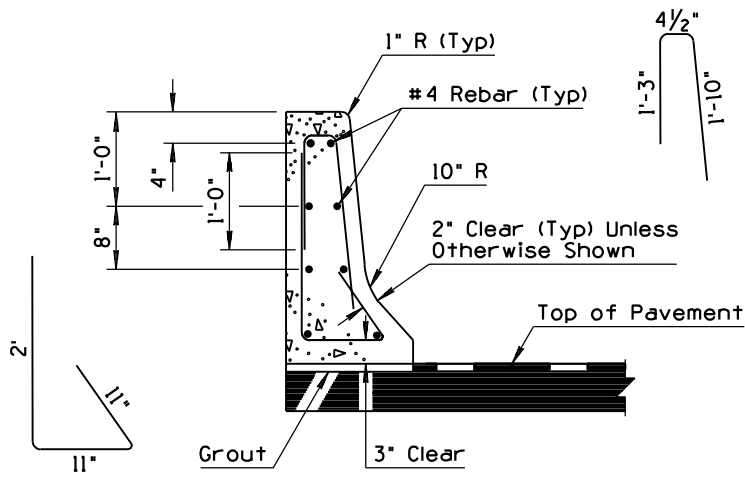
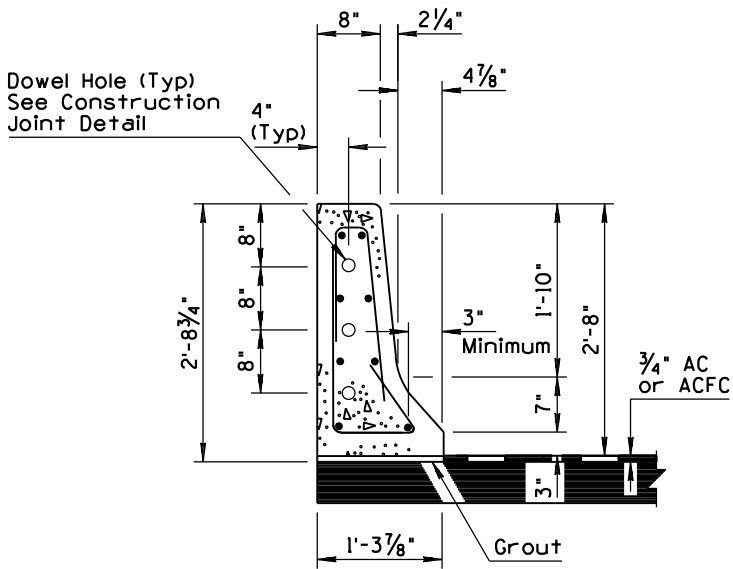
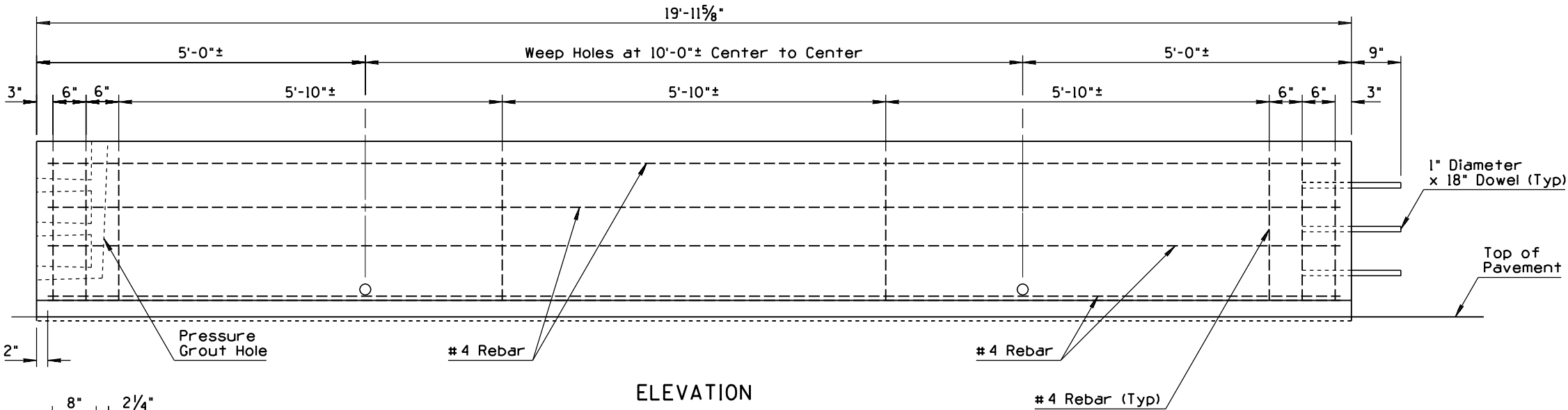
1. Half Barrier shall be constructed by the slip or fixed form method.
  2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
  3. Concrete shall be Class S,  $f'_c=4000$  PSI.
  4. If the footing and barrier are cast monolithically, #6 S shape rebar will not be required.
  5. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
  6. Weep holes shall be placed whenever barrier is backfilled unless otherwise indicated on the plans.
- ▲ Depth to match adjacent PCCP thickness (8" Minimum).

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' CAST-IN-PLACE	DRAWING NO. C-10.50 Sheet 1 of 2

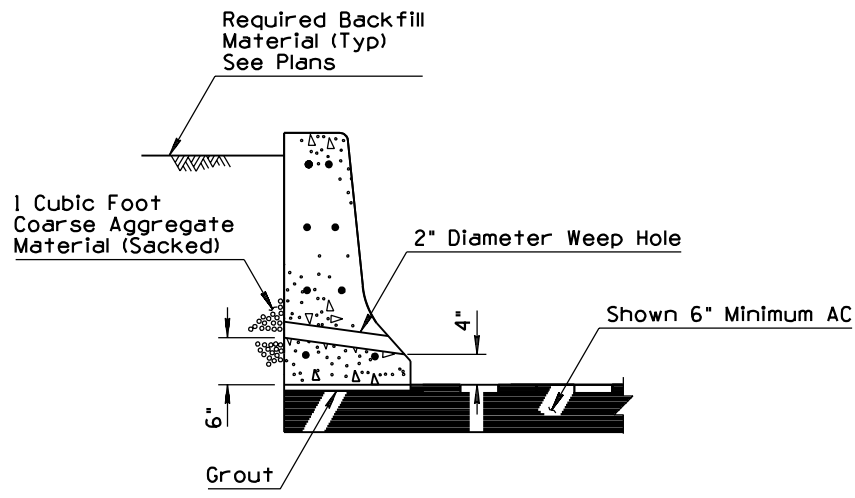
NO.	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			



PLAN

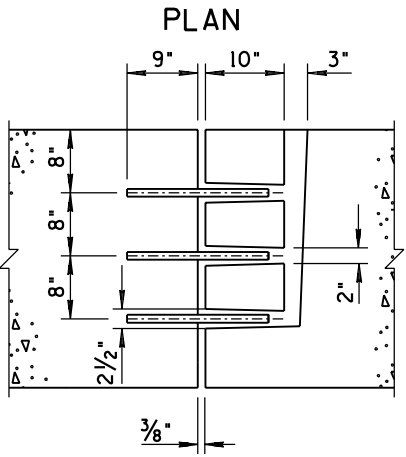
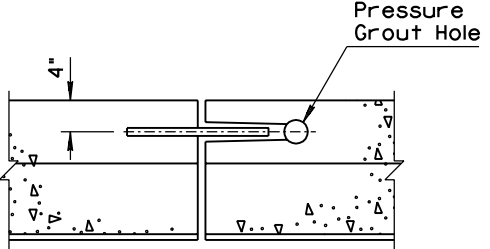


AT REBAR  
SECTION B-B  
SEE SECTION A-A FOR  
TYPICAL REBAR PLACEMENT



AT WEEP HOLE  
SECTION C-C  
SEE SECTION A-A FOR  
TYPICAL REBAR PLACEMENT

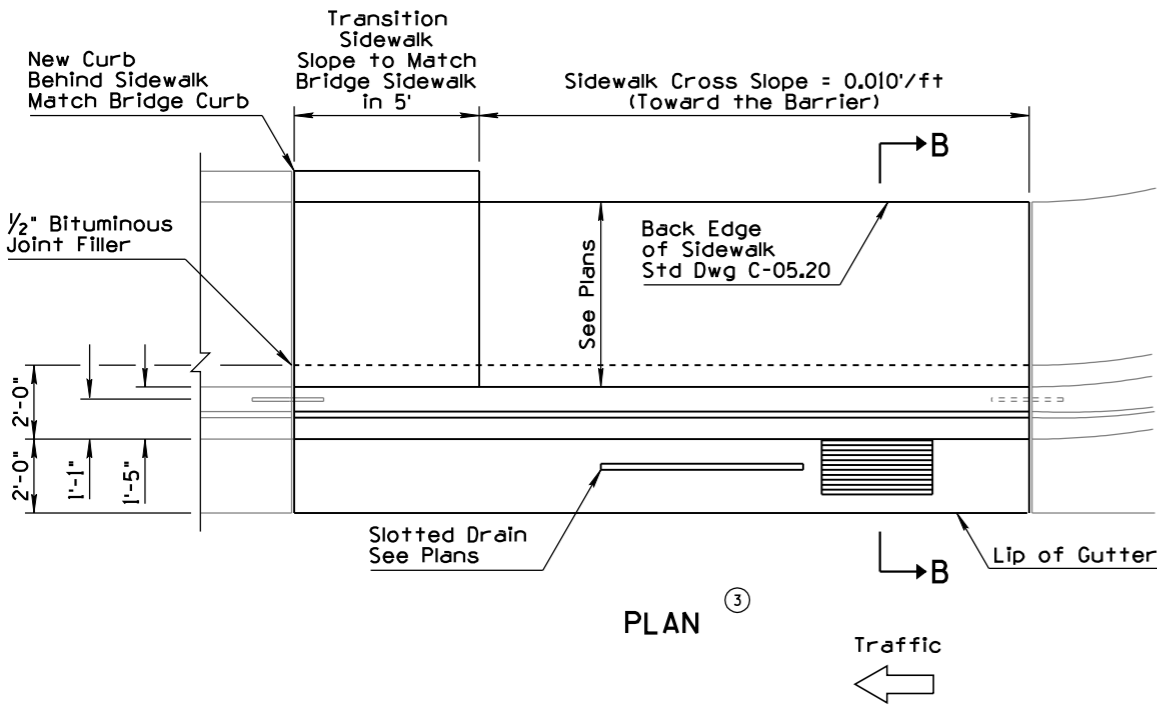
- ### GENERAL NOTES
- Concrete Half Barrier shall be precast.
  - Concrete shall be Class S,  $f'_c=4000$  PSI.
  - Pavement thickness adjacent to Half Barrier shall be 3/4" minimum.
  - The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
  - Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
  - All bend dimensions for rebar are out-to-out of rebars.
  - Weep holes shall be placed whenever Half Barrier is backfilled unless otherwise indicated on the plans.



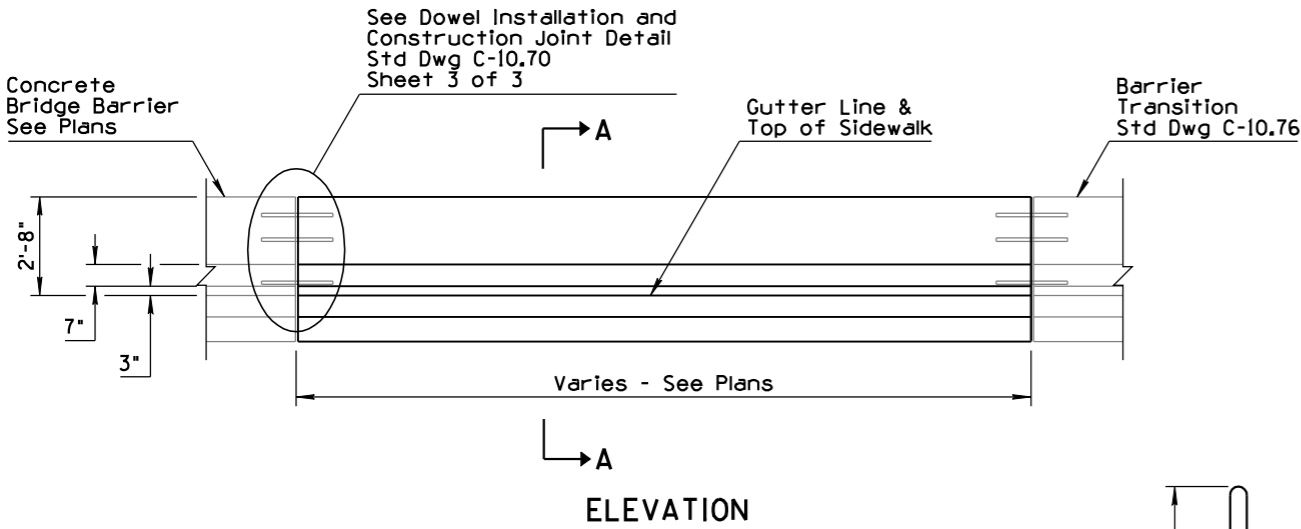
CONSTRUCTION JOINT DETAIL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' PRECAST	DRAWING NO. C-10.50 Sheet 2 of 2

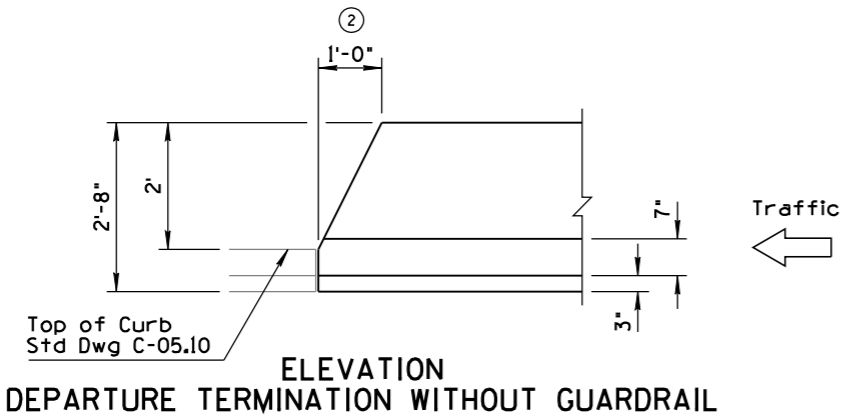
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED SECTION VIEWS; REMOVED SLOPE DESIGNATION	RLF	4/06
2	WAS 12½" - IS NOW 1' & ADDED WITHOUT GUARDRAIL TO TITLE	RLF	4/06
3	MODIFIED TITLE	RLF	4/06
4			



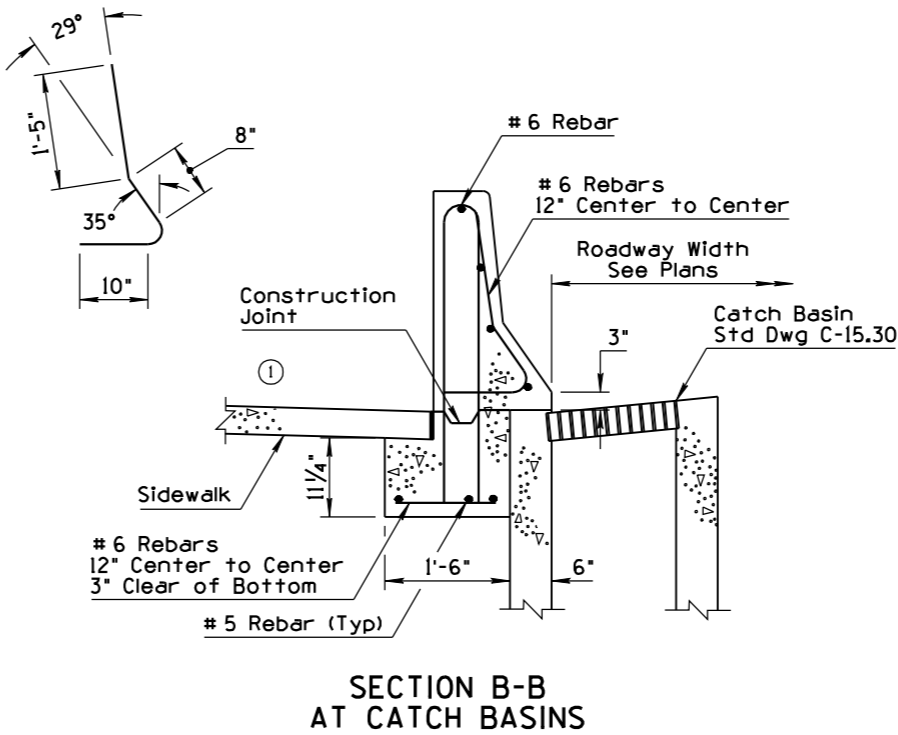
PLAN ③



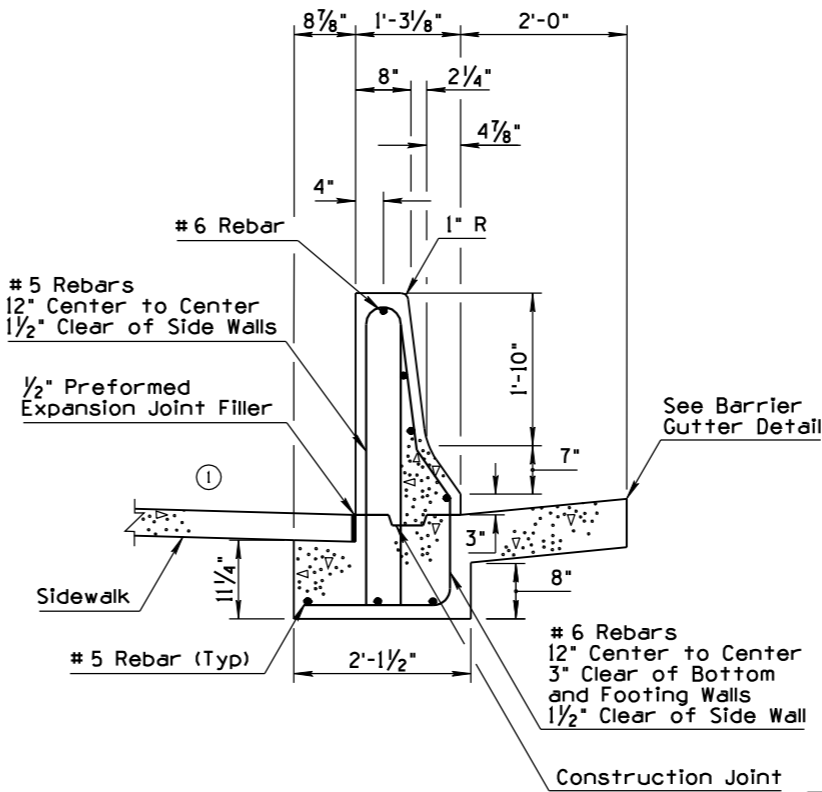
ELEVATION



ELEVATION  
DEPARTURE TERMINATION WITHOUT GUARDRAIL

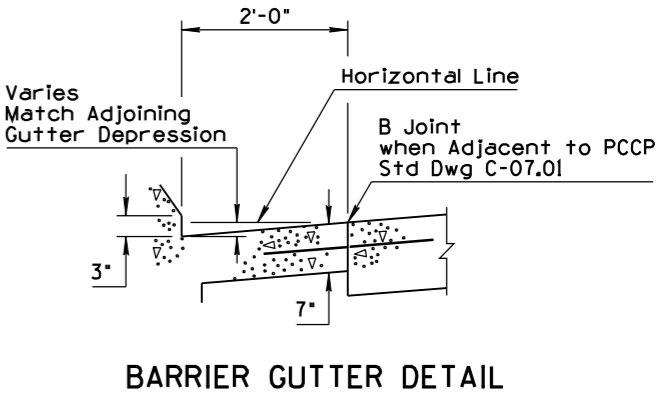


SECTION B-B  
AT CATCH BASINS

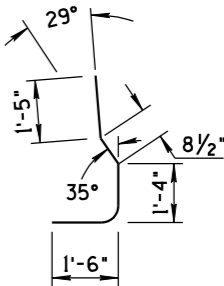


SECTION A-A

- GENERAL NOTES**
1. Concrete shall be Class S, f'c=4000 PSI.
  2. Rebar shall conform to Std Spec 1003.
  3. Rebar shall have 2" minimum clear cover unless otherwise noted.
  4. See drainage sheets for slotted drain and catch basin details.
  5. Departure termination may be substituted for Std Dwg C-10.76 barrier transition under departure conditions.
  6. See Std Dwg C-05.20 for sidewalk construction.
  7. All bend dimensions for rebar are out-to-out of rebars.

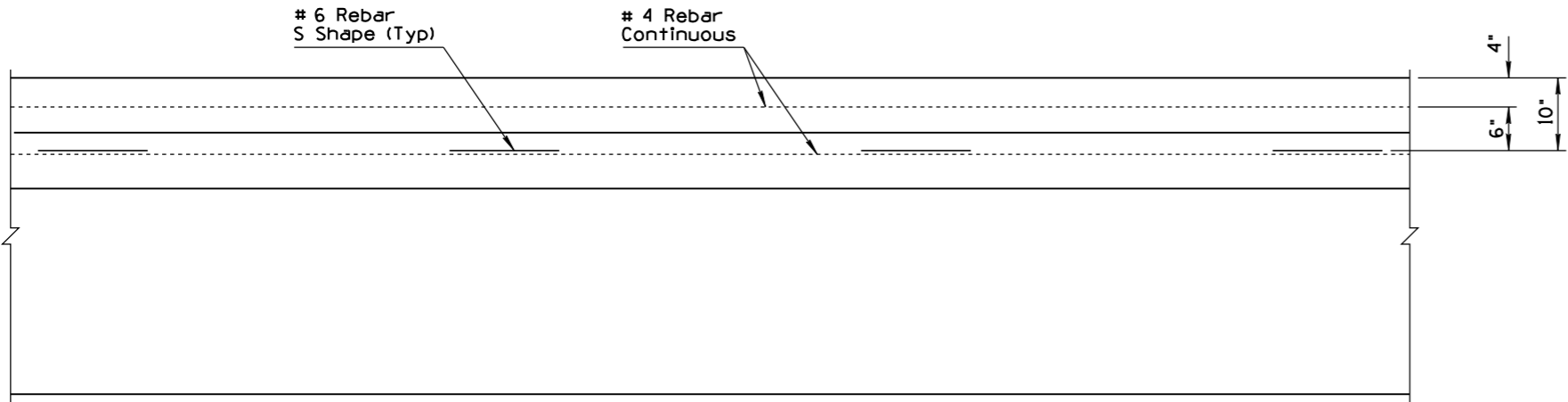


BARRIER GUTTER DETAIL

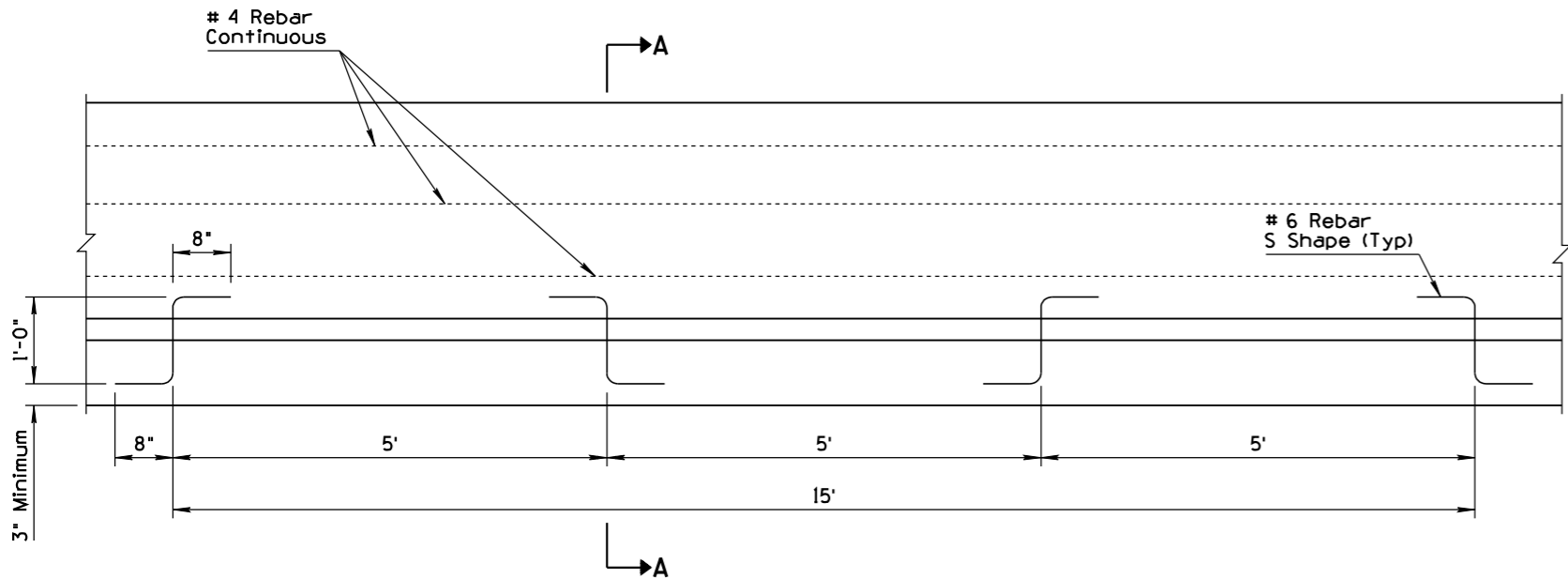


APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF BARRIER 32' TYPE 'F' WITH SIDEWALK	DRAWING NO. C-10.51

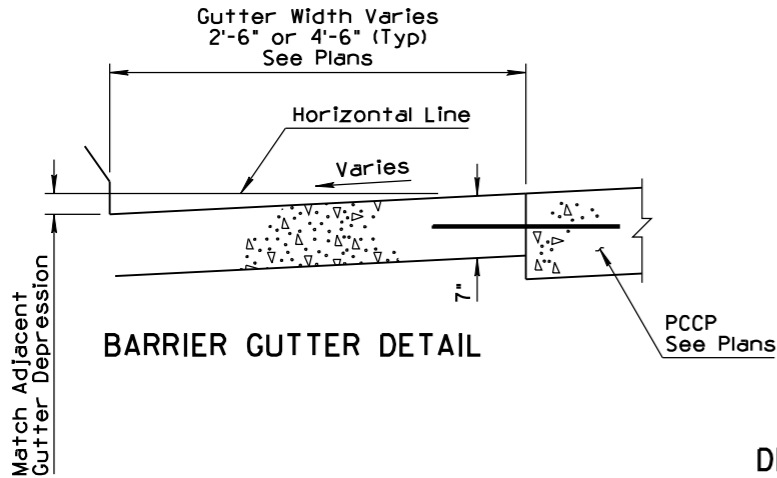
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED D REFERENCE FROM GENERAL NOTE	RLF	4/06
2			
3			
4			



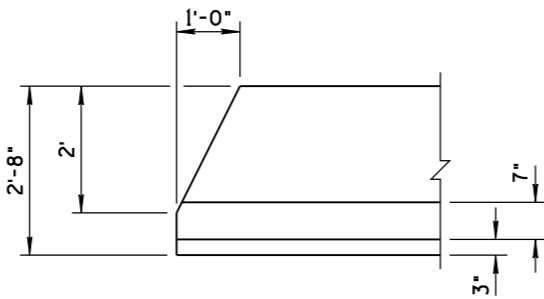
PLAN



ELEVATION



BARRIER GUTTER DETAIL

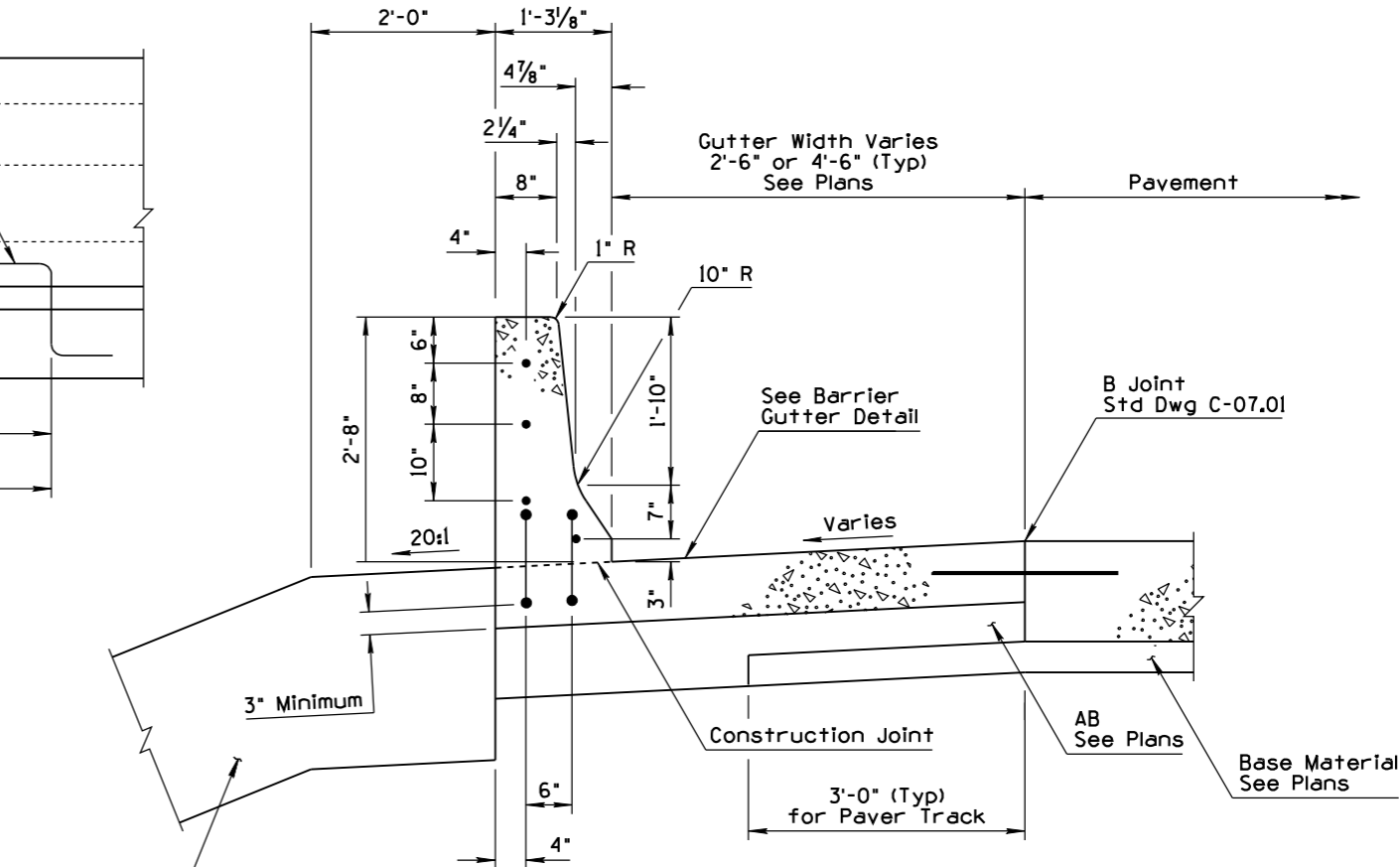


ELEVATION

DEPARTURE TERMINATION WITHOUT GUARDRAIL

GENERAL NOTES

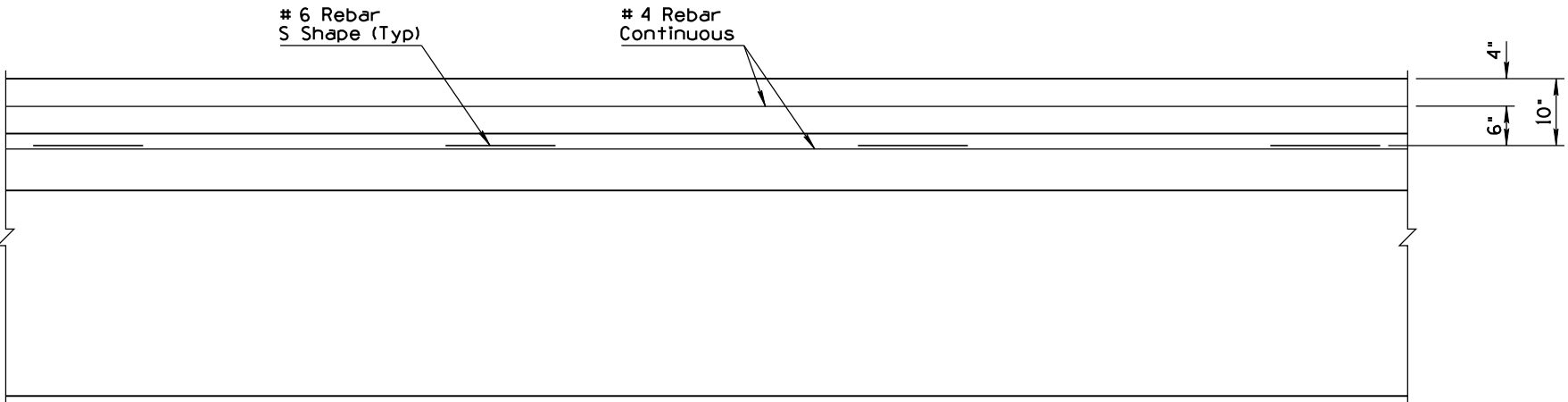
1. Half Barrier shall be constructed by the slip or fixed form method.
2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
3. Concrete shall be Class S,  $f_c=4000$  PSI.
4. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
- ① 5. Gutter thickness may be adjusted to match the PCCP thickness, as approved by the Engineer.
6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not applicable.
7. At bridges, the cross slope of the gutter shall transition to match the cross-slope of the bridge. Length of the transition is 15'.
8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand-tooled or sawn.
9. Whenever Half Barrier is backfilled, see Std Dwg C-10.50 for weep hole details, unless otherwise specified on the plans.



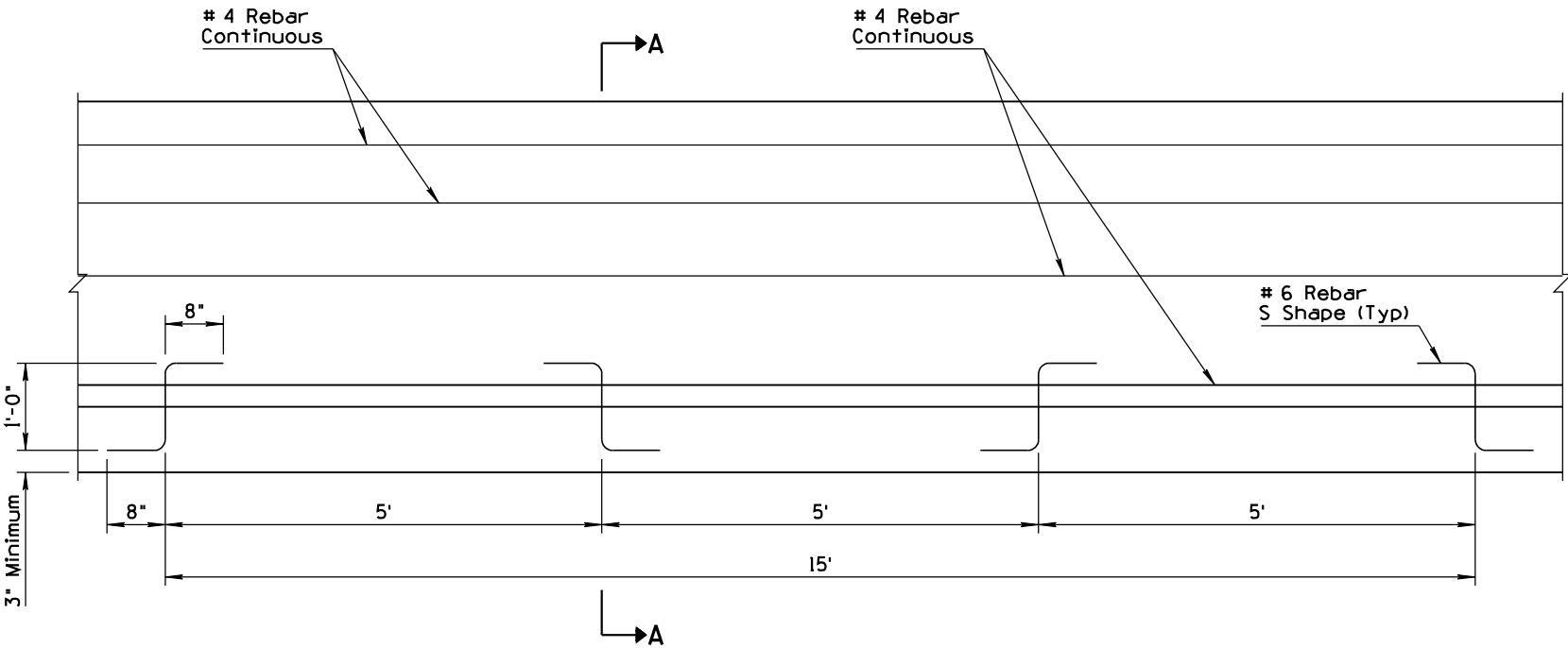
SECTION A-A

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF BARRIER 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.52

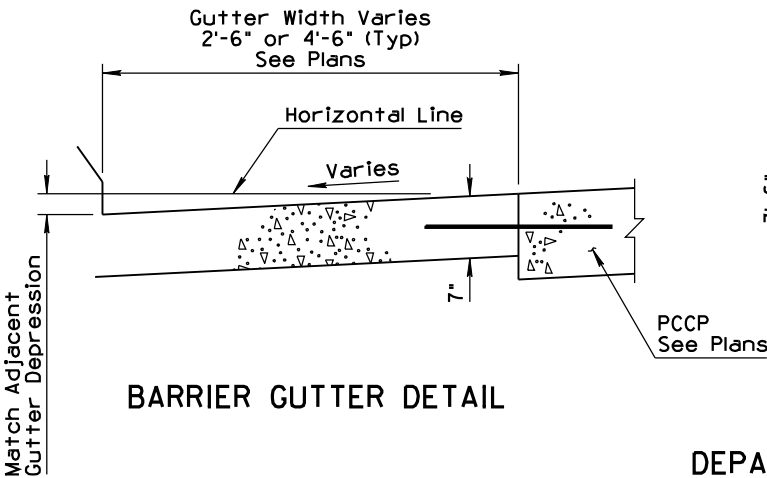
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2	ADDED GENERAL NOTE 9	RLF	9/04
3	REVISED GENERAL NOTE 3	RLF	9/04
4	REMOVED DIMENSION	RLF	7/05



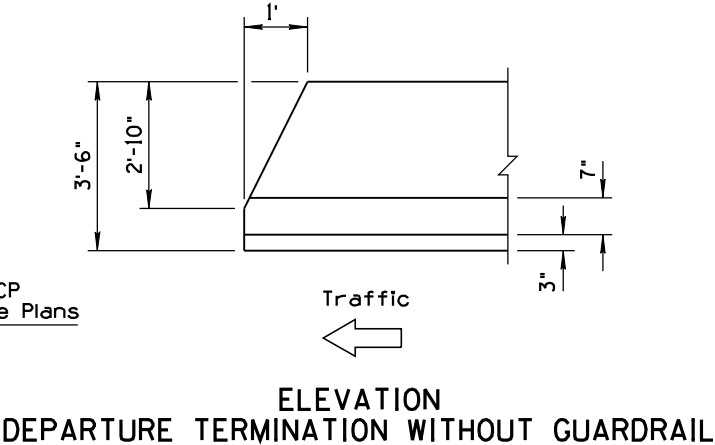
PLAN



ELEVATION



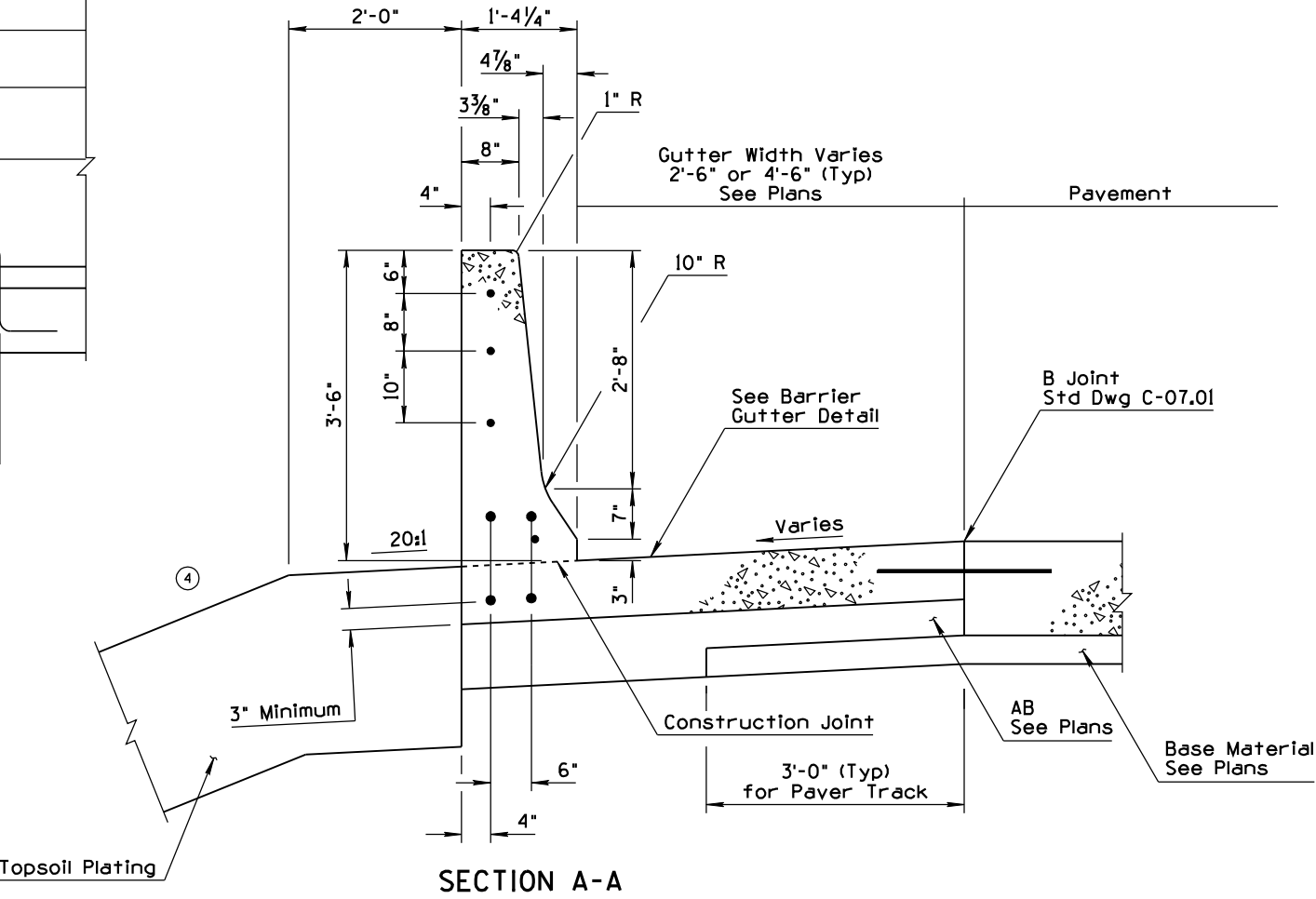
BARRIER GUTTER DETAIL



ELEVATION  
DEPARTURE TERMINATION WITHOUT GUARDRAIL

GENERAL NOTES

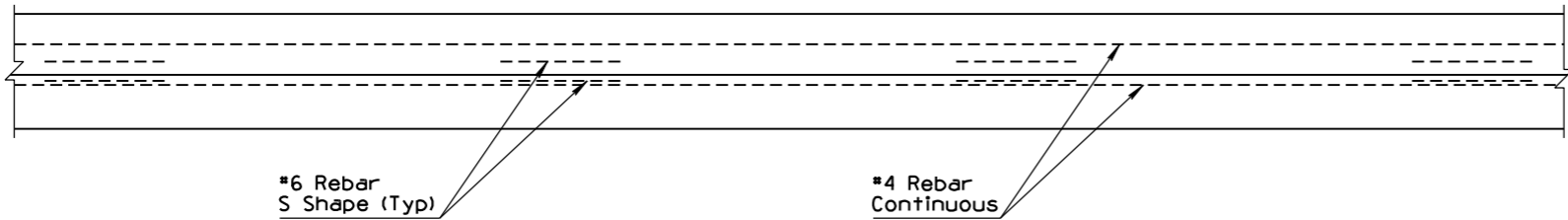
1. Half Barrier shall be constructed by the slip or fixed form method.
2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
3. Concrete shall be Class S,  $f'_c=4000$  PSI.
4. # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
5. Thickness of gutter, "D" can be adjusted to match the PCCP thickness, as approved by the Engineer.
6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not applicable.
7. At bridges, the cross slope of the gutter shall transition to match the cross slope of the bridge. Length of the transition is 15'.
8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand tooled or sawn.
9. Whenever Half Barrier is backfilled, see Std Dwg C-10.50 for weep hole details, unless otherwise indicated on the plans.



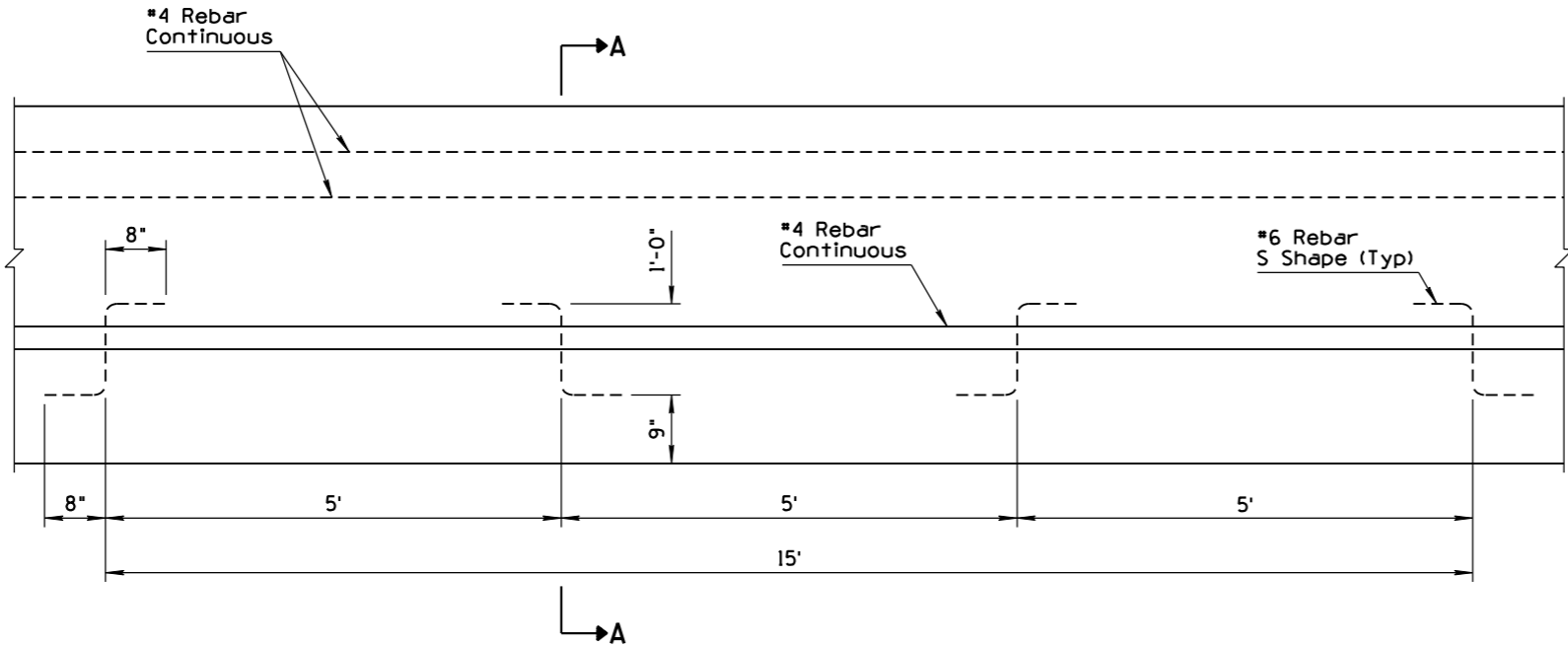
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF BARRIER 42" TYPE 'F' WITH GUTTER	DRAWING NO. ① C-10.53

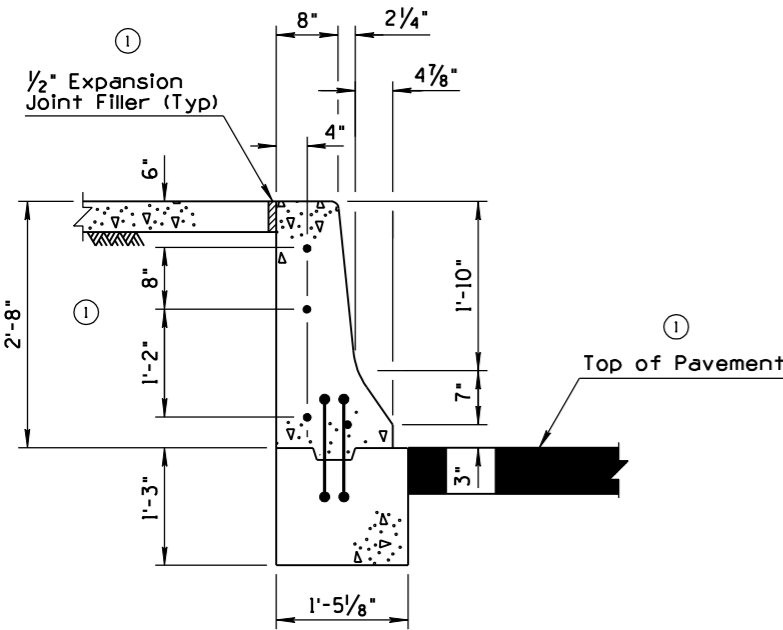
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SECTION A-A: ADDED CONCRETE CAP & NOTES	RLF	11/06
2	REVISED GENERAL NOTE 3	RLF	11/06
3	ADDED (Typ)	RLF	11/06
4			



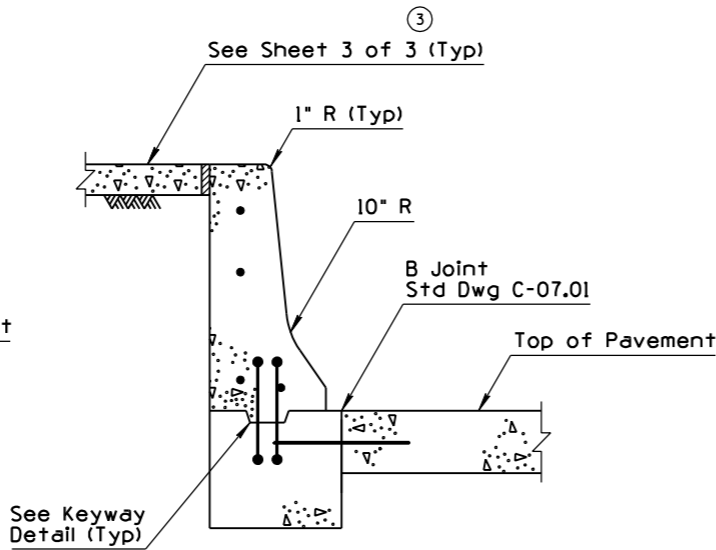
PLAN



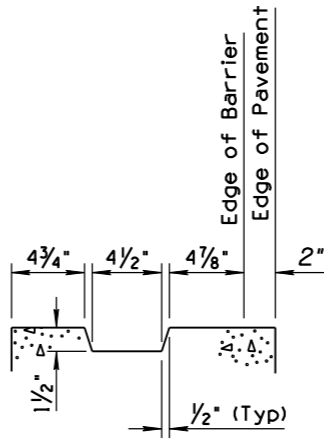
ELEVATION



WITH AC  
SECTION A-A



WITH PCCP  
SECTION A-A  
SEE SECTION A-A (WITH AC)  
FOR TYPICAL REBAR PLACEMENT



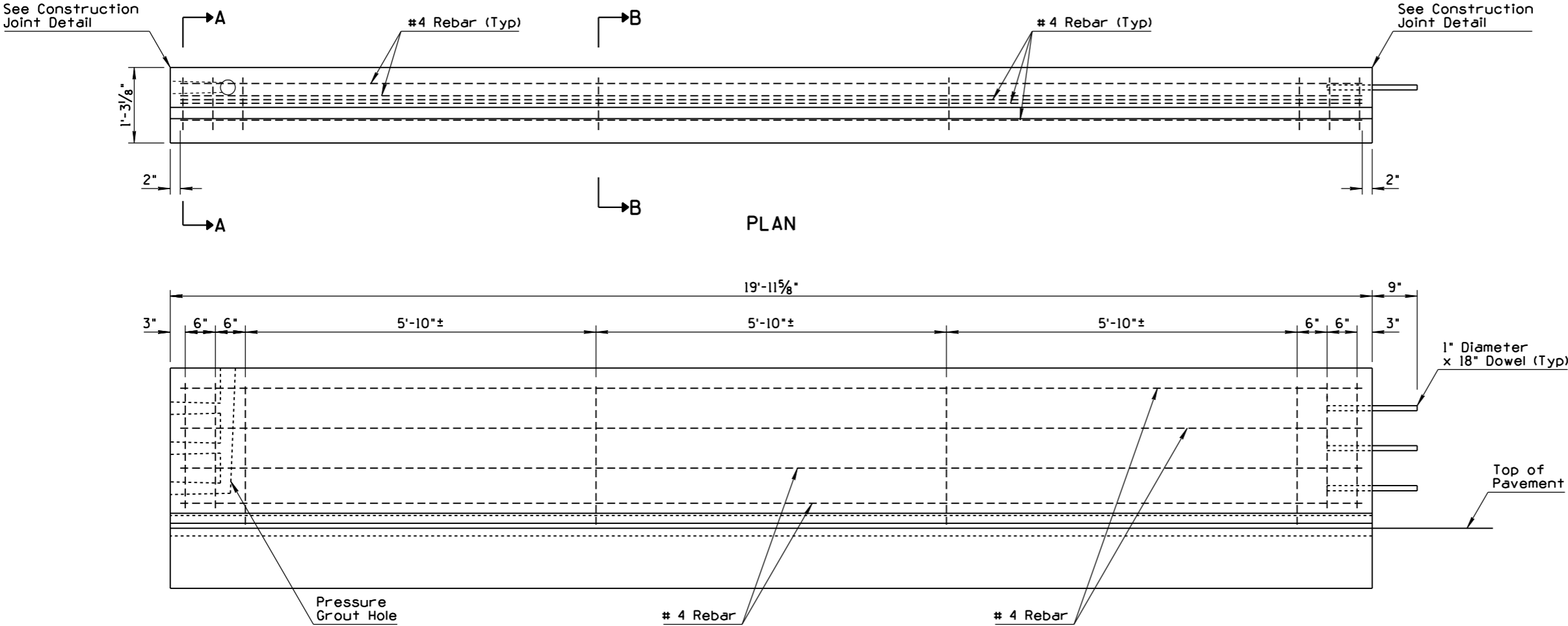
KEYWAY DETAIL  
SEE SECTION A-A (WITH AC)  
FOR TYPICAL REBAR PLACEMENT

GENERAL NOTES

- Concrete shall be Class S,  $f'_c=4000$  PSI.
- If the footing and Half Barrier are cast monolithically, #6 S shape rebars are not required.
- Longitudinal rebar shall extend 12" past the construction joint at the completion of each incremental pour.

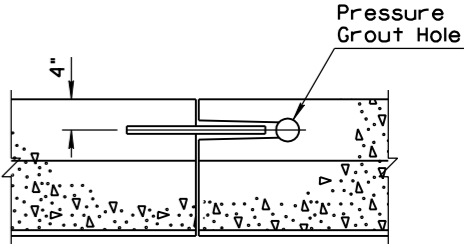
APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 11/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS CAST-IN-PLACE	DRAWING NO. C-10.54 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SECTION A-A: ADDED CONCRETE CAP & NOTES	RLF	11/06
2	REVISED CALLOUT: ADDED 'TYP'	RLF	11/06
3			
4			

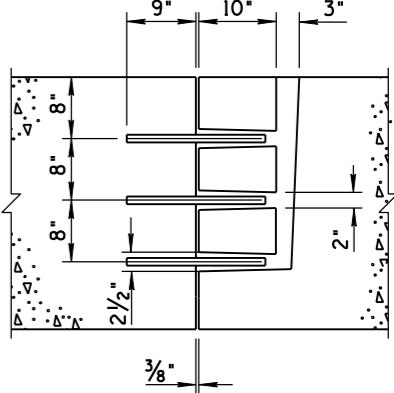


GENERAL NOTES

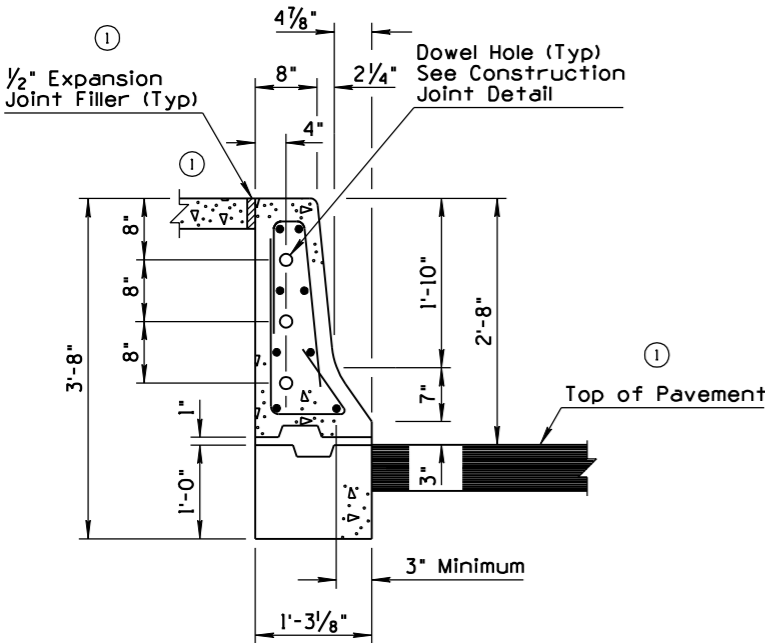
1. Concrete shall be Class S,  $f'_c=4000$  PSI.
2. The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
3. Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
4. All bend dimensions for rebar are out-to-out of rebars.



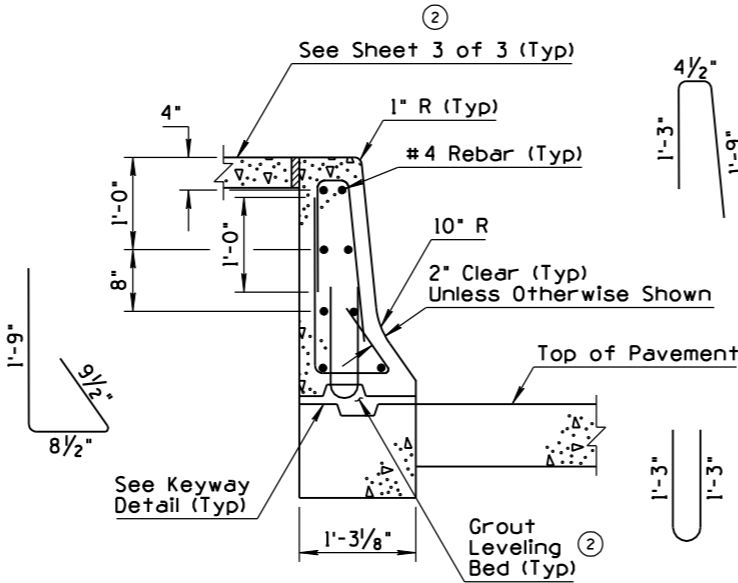
PLAN



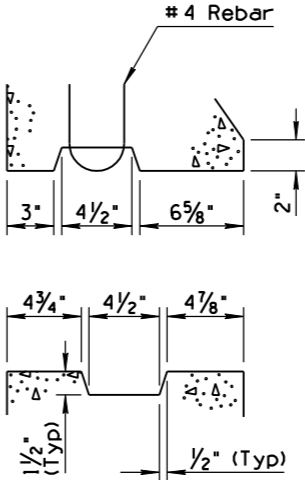
ELEVATION  
CONSTRUCTION JOINT DETAIL



WITH AC  
SECTION A-A



AT REBAR - WITH PCCP  
SECTION B-B



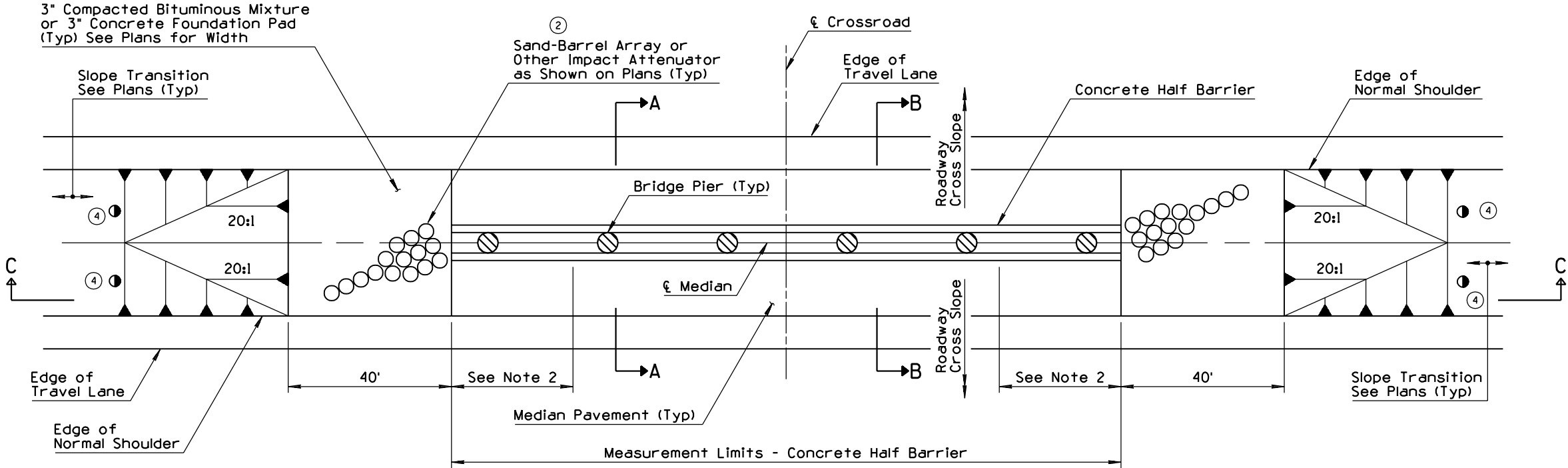
KEYWAY DETAIL

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 11/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF BARRIER 32' TYPE 'F' AT PIERS PRECAST	DRAWING NO. C-10.54 Sheet 2 of 3

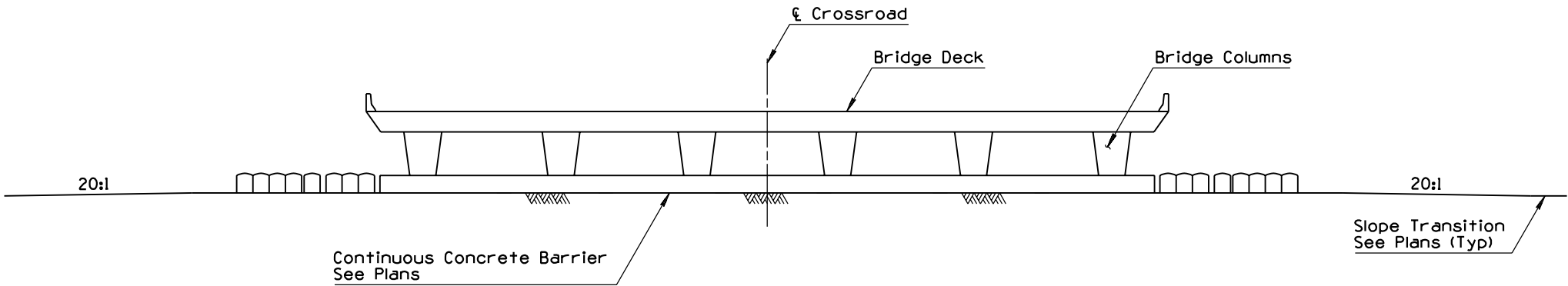
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD FROM C-10.15 TO C-10.54, 3 OF 3	RLF	9/04
2	REVISED SAND BARREL REFERENCE	RLF	9/04
3	ADDED GENERAL NOTE	RLF	9/04
4	MODIFIED SLOPE CALLOUT	RLF	9/04

GENERAL NOTES

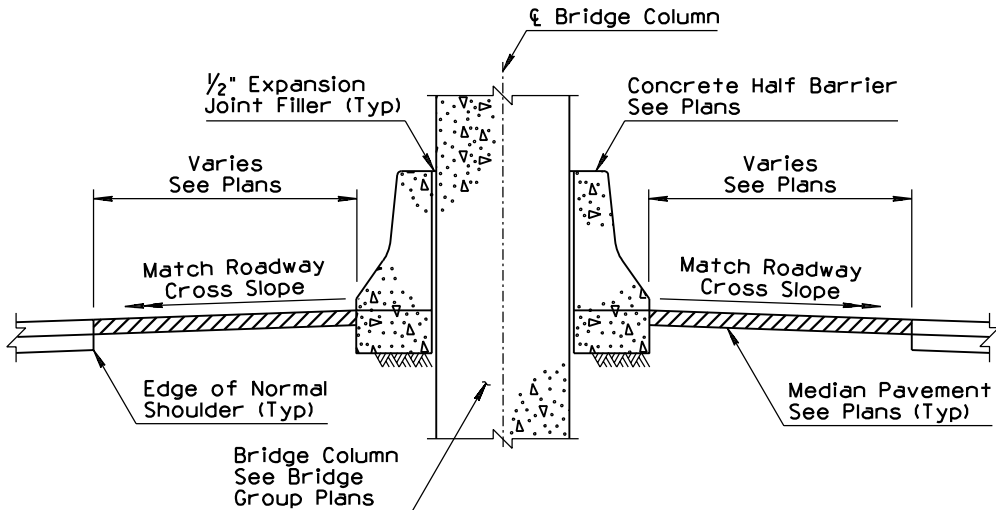
1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
2. Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
3. 1 Slope as shown on Plans



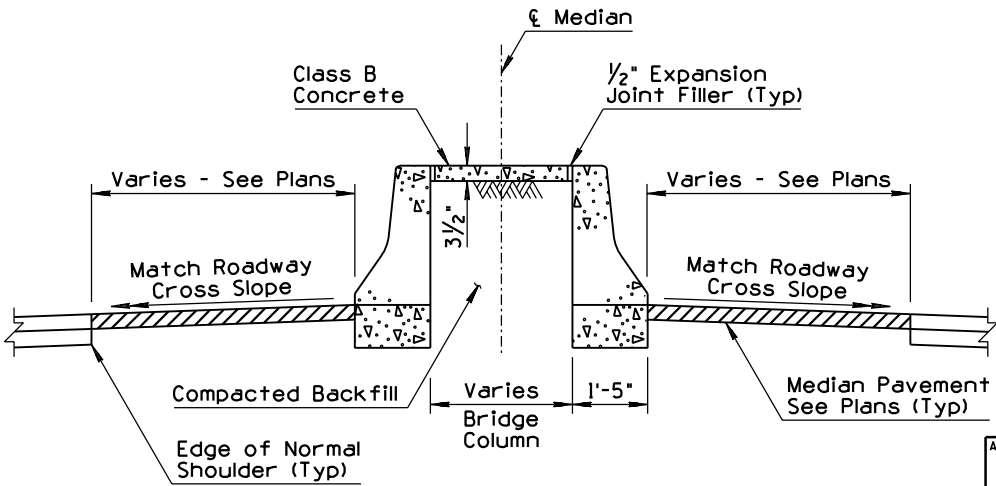
PLAN



SECTION C-C



SECTION A-A



SECTION B-B

APPROVED FOR DESIGN <i>May Vipavina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS LAYOUT	DRAWING NO. C-10.54 Sheet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-1064a, 1 OF 2 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 1	RLF	9/04
3	RELOCATED ■ 4 REBAR	RLF	9/04
4			

GENERAL NOTES

- ② 1. Concrete shall be Class S,  $f'_c=4000$  PSI.
2. If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
3. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
4. #4 rebar shall extend 12" past the construction joint at the completion of the day's pour.

# 6 Rebar  
S Shape (Typ)

# 4 Rebar  
Continuous

PLAN

# 4 Rebar  
Continuous

# 4 Rebar  
Continuous

# 6 Rebar  
S Shape (Typ)

ELEVATION

See Sheet 3 of 3

1" R (Typ)

10" R

B Joint  
Std Dwg C-07.01

Top of Pavement

Median Pavement

See Keyway  
Detail (Typ)

WITH PCCP  
SECTION A-A

SEE SECTION A-A (WITH AC) FOR  
TYPICAL REBAR PLACEMENT

WITH AC  
SECTION A-A

KEYWAY DETAIL

SEE SECTION A-A (WITH AC) FOR  
TYPICAL REBAR PLACEMENT

APPROVED FOR DESIGN

*Mary Viparina*

APPROVED FOR DISTRIBUTION

*Julia [Signature]*

STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
ROADWAY STANDARD DRAWINGS

REV.

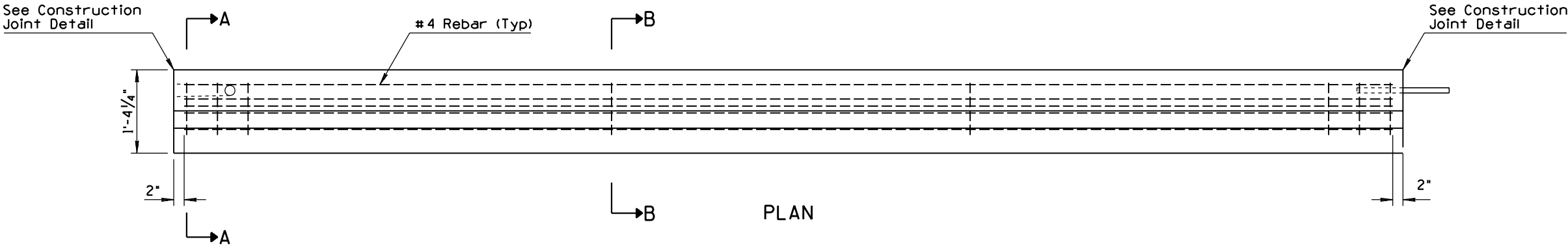
9/04

CONCRETE HALF BARRIER  
42" TYPE 'F' AT PIERS  
CAST-IN-PLACE

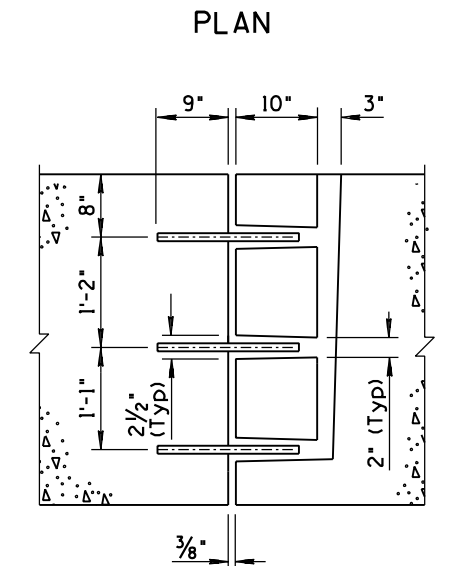
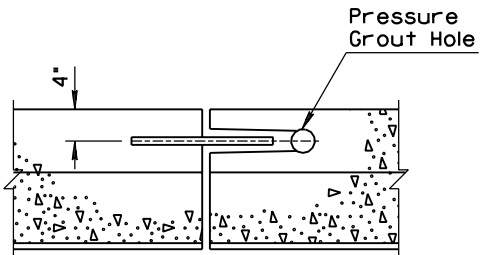
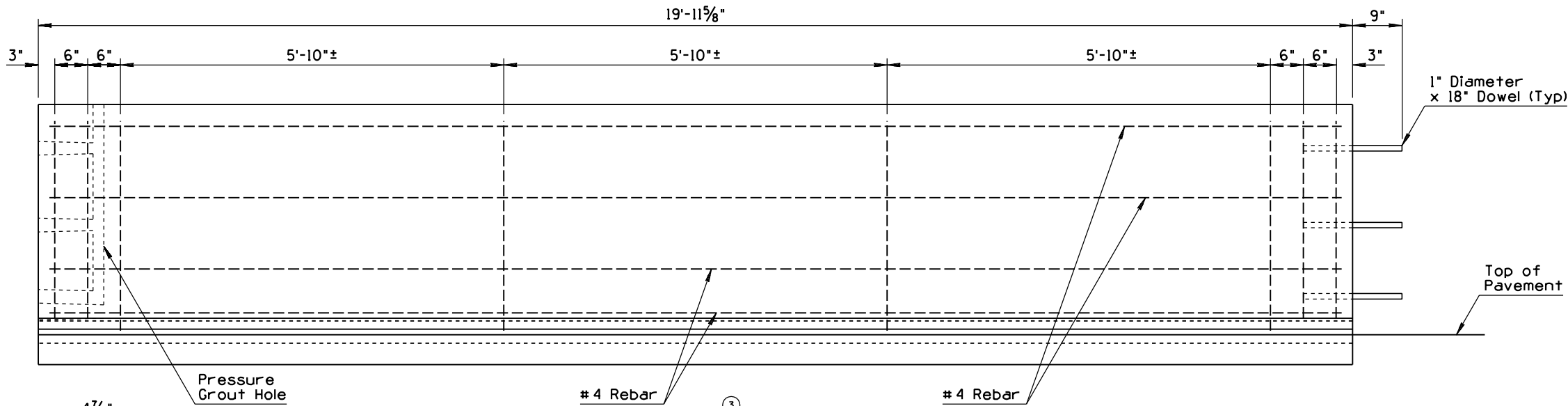
DRAWING NO.

C-10.55  
Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD FROM C-10642a, 2 OF 2 AND REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTES 1, 4 AND ADDED NOTE 5	RLF	9/04
3	MODIFIED ELEVATION	RLF	9/04
4			

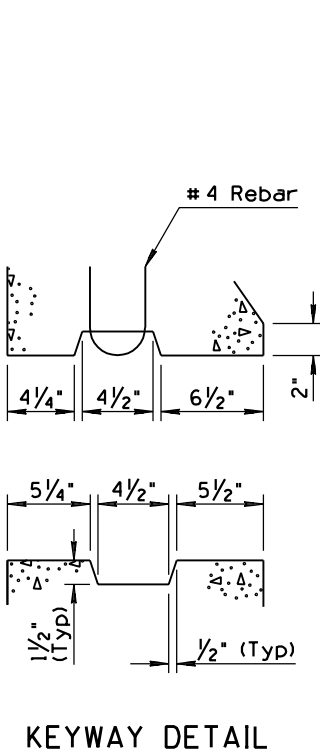
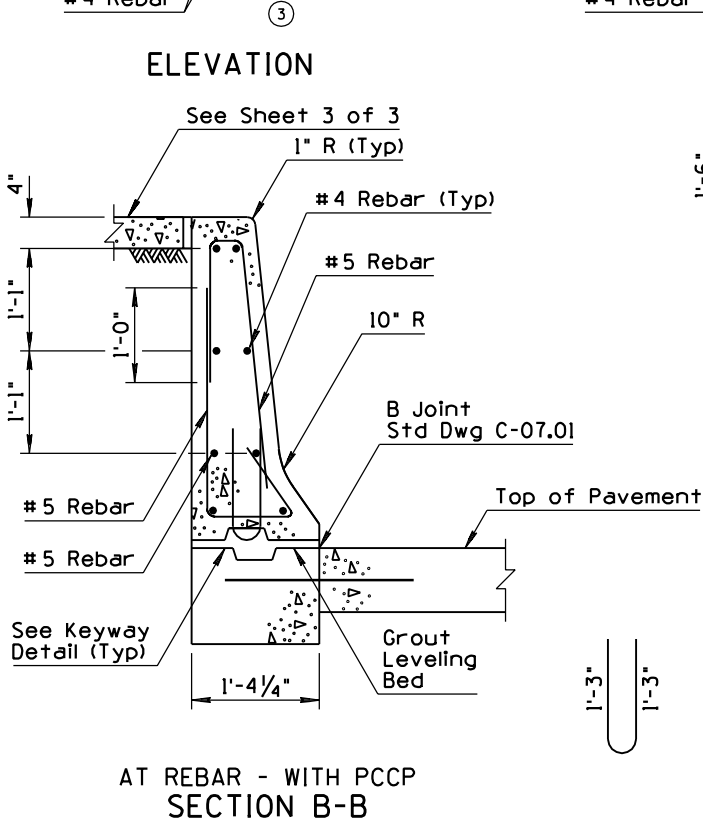
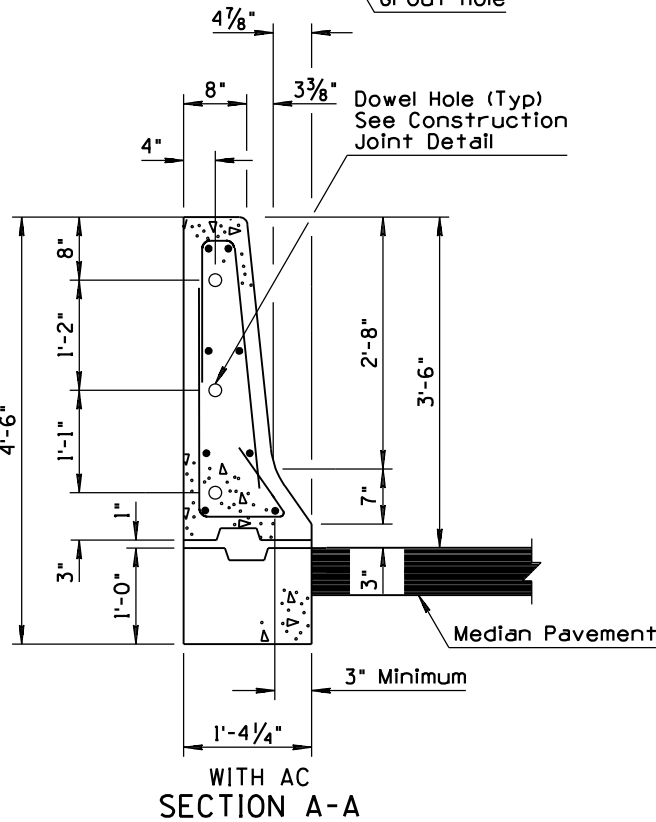


- GENERAL NOTES
1. Concrete shall be Class S,  $f'_c=4000$  PSI.
  2. The Half Barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
  3. Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
  4. All bend dimensions for rebar are out-to-out of bars.
  5. Rebar shall have 2" minimum clear cover unless otherwise noted.

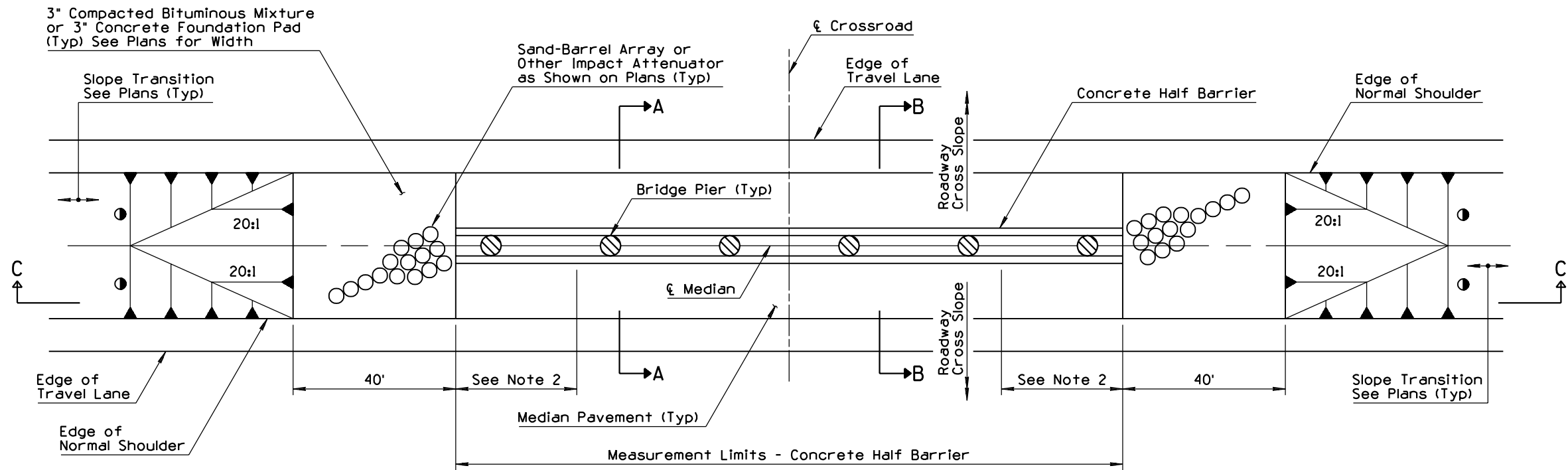


CONSTRUCTION JOINT DETAIL

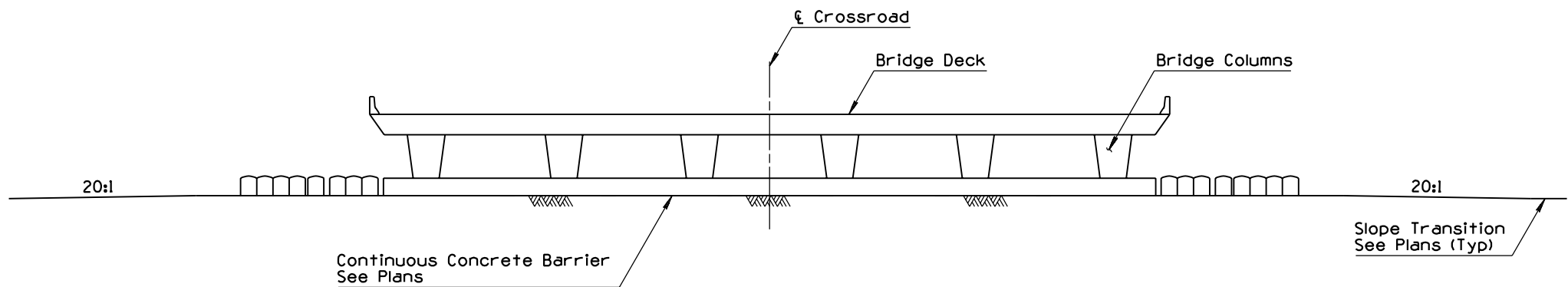
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS PRECAST	DRAWING NO. C-10.55 Sheet 2 of 3



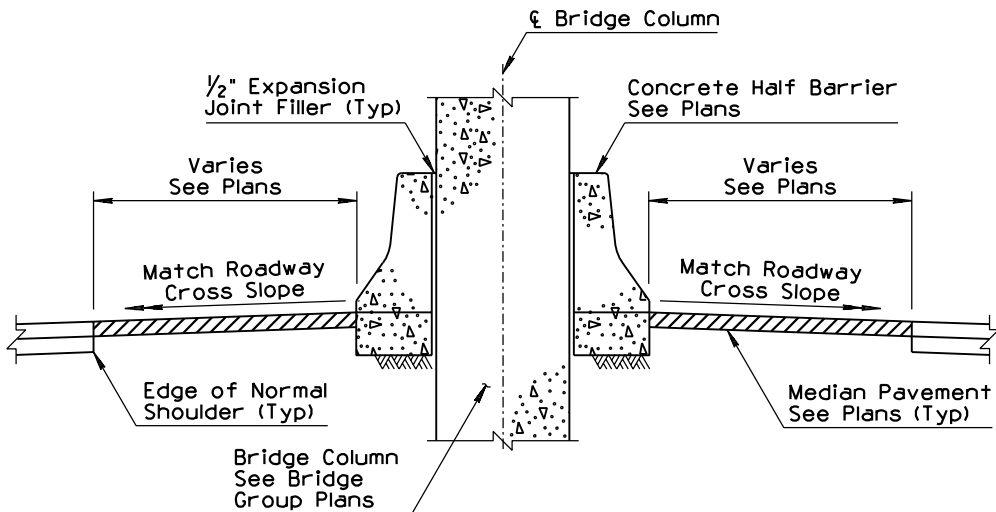
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW STANDARD DWG	RLF	9/04
2			
3			
4			



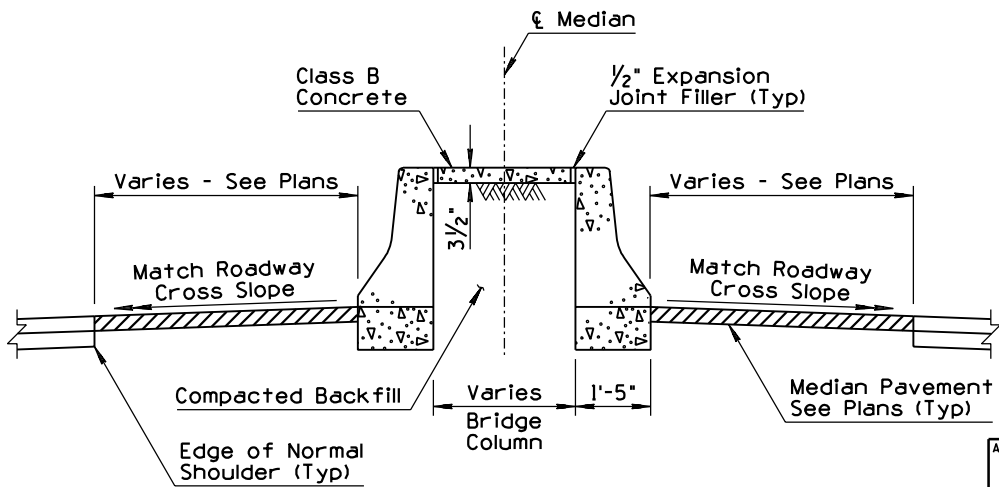
PLAN



SECTION C-C



SECTION A-A



SECTION B-B

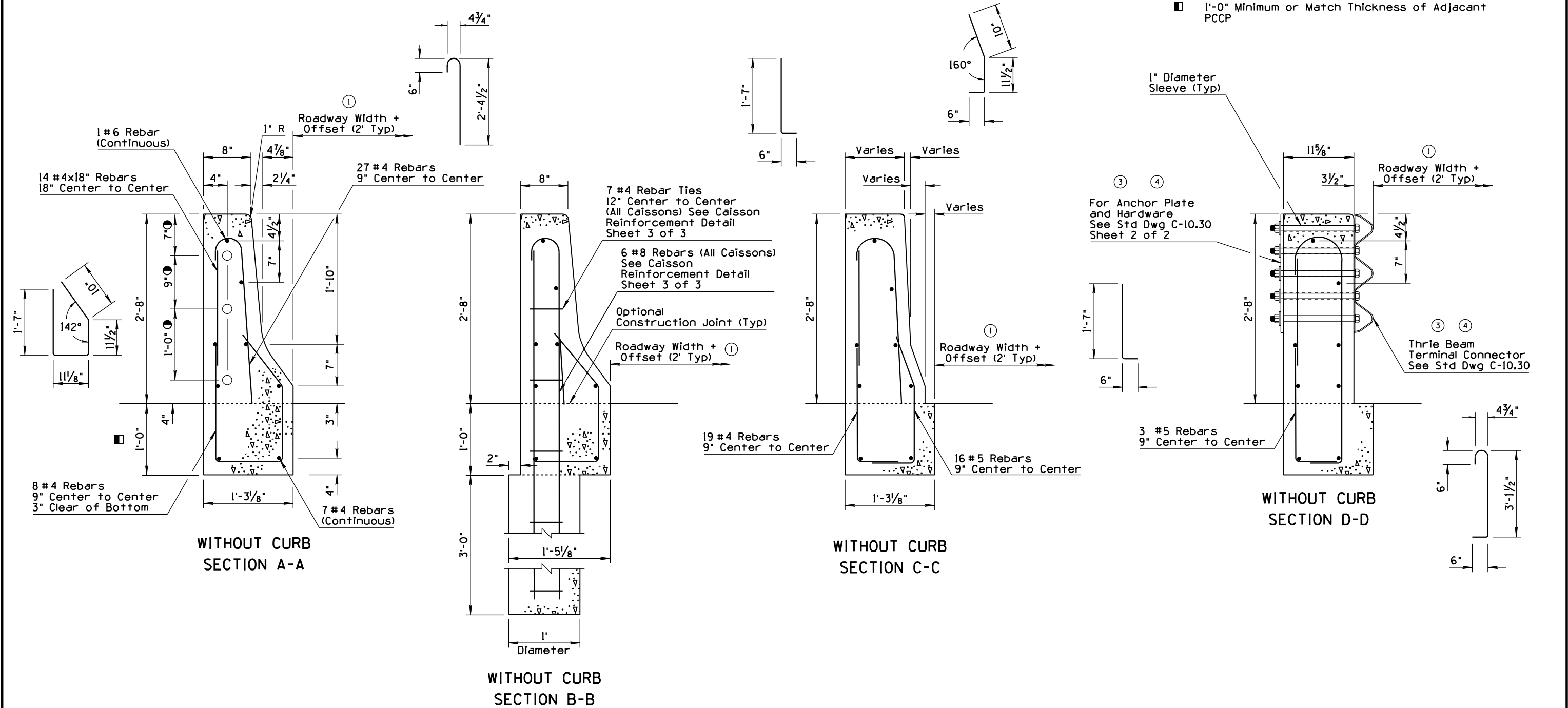
GENERAL NOTES

1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
  2. Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
- ① Slope as shown on Plans

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS LAYOUT	DRAWING NO. C-10.55 Sheet 3 of 3

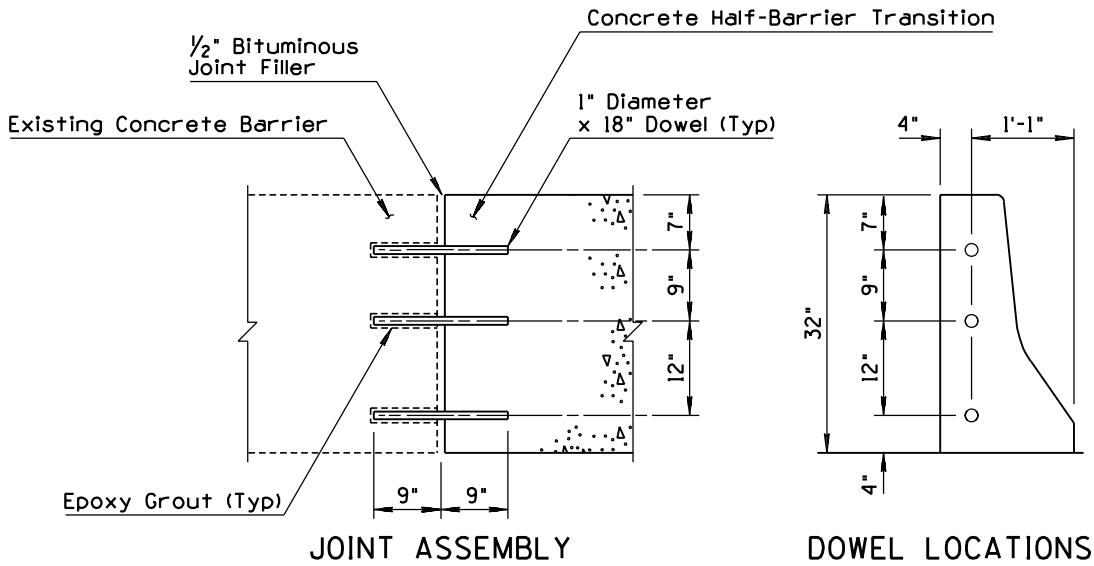


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED DIMENSION	RLF	9/04
2	REVISED TITLE	RLF	9/04
3	ADDED REFERENCE	RLF	9/04
4	REVISED NOTE	RLF	7/05

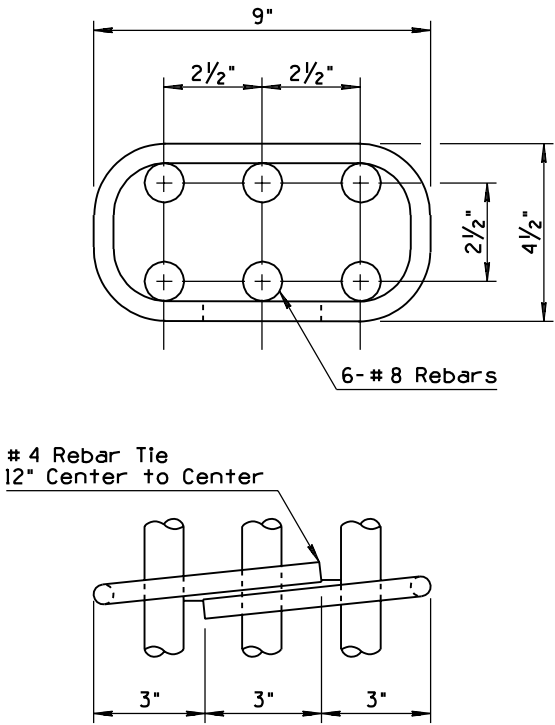


APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CAISSONS ②	DRAWING NO. C-10.70 Sheet 2 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



CONSTRUCTION JOINT DETAIL  
(OPTIONAL)



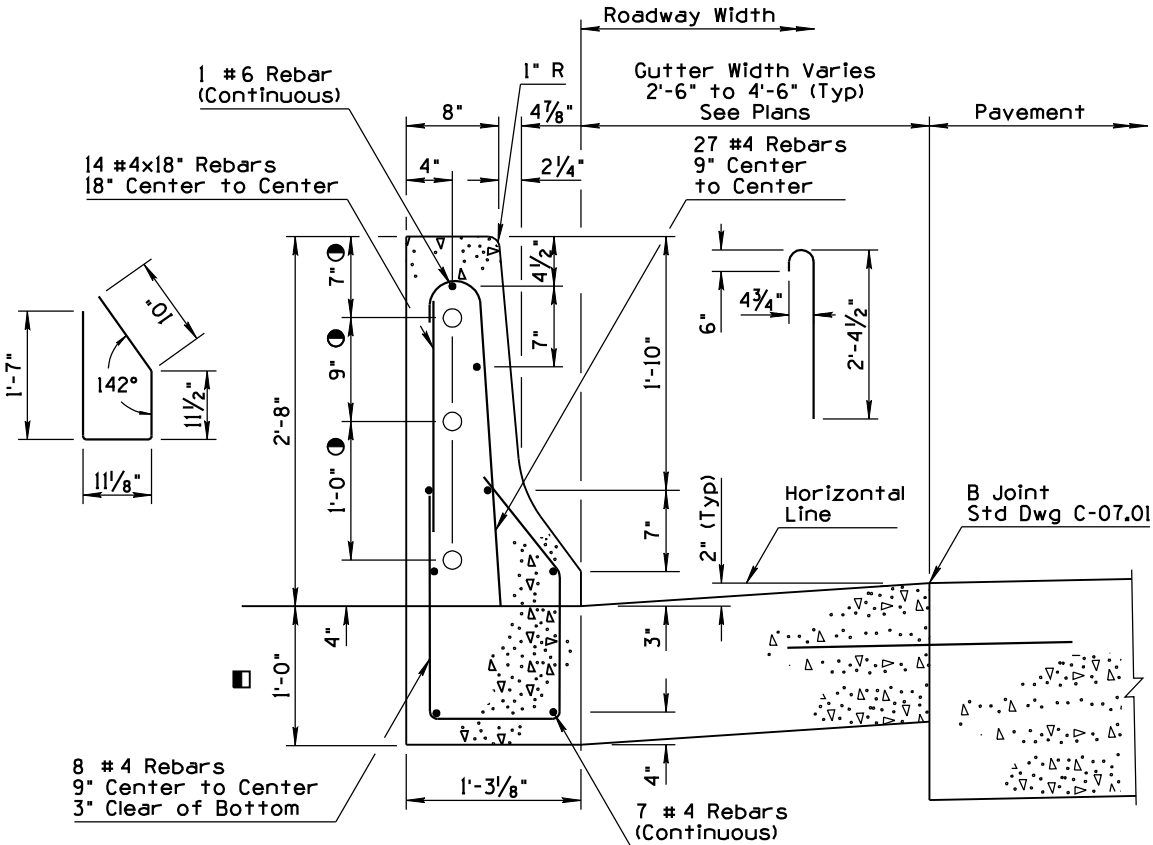
CAISSON REINFORCEMENT

2

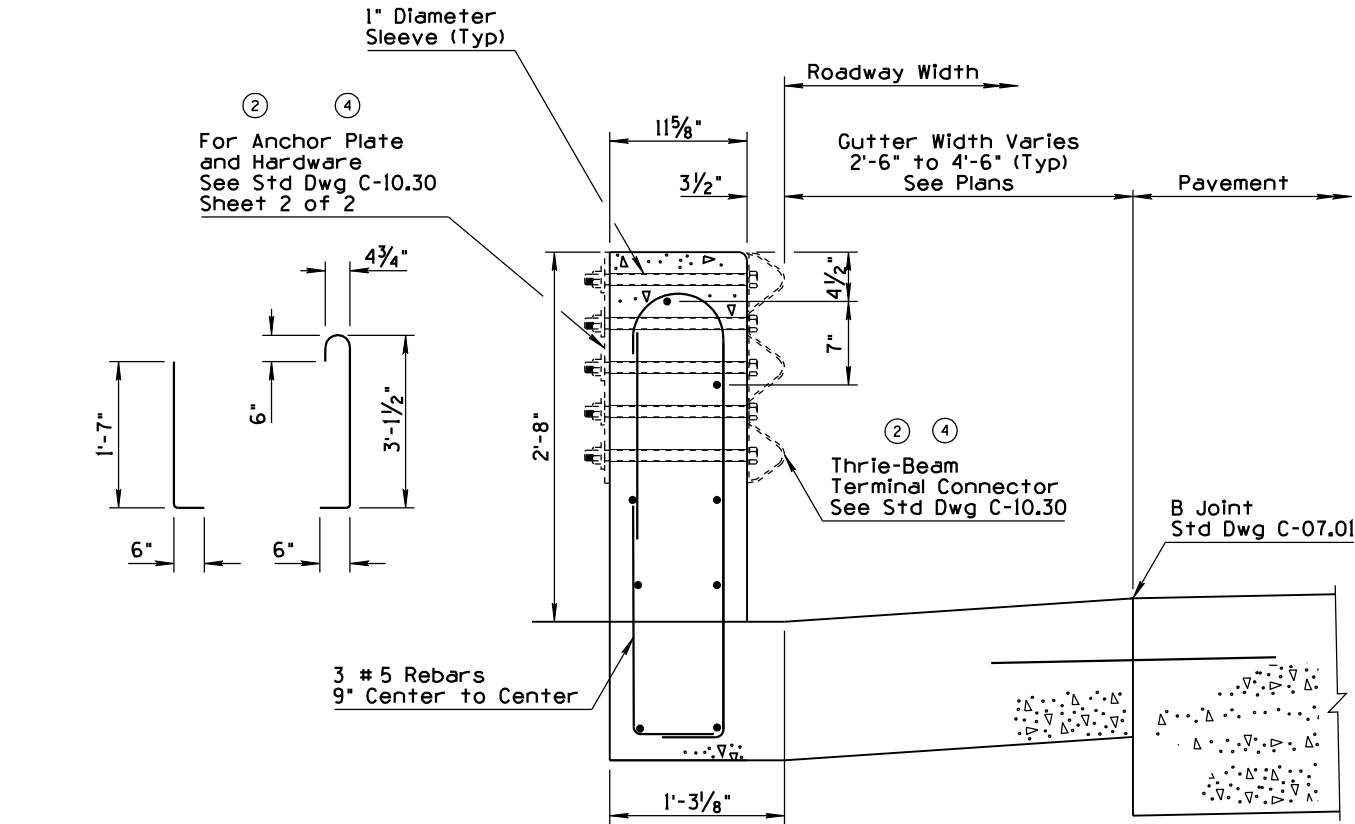
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CAISSONS ①	DRAWING NO. C-10.70 Sheet 3 of 3



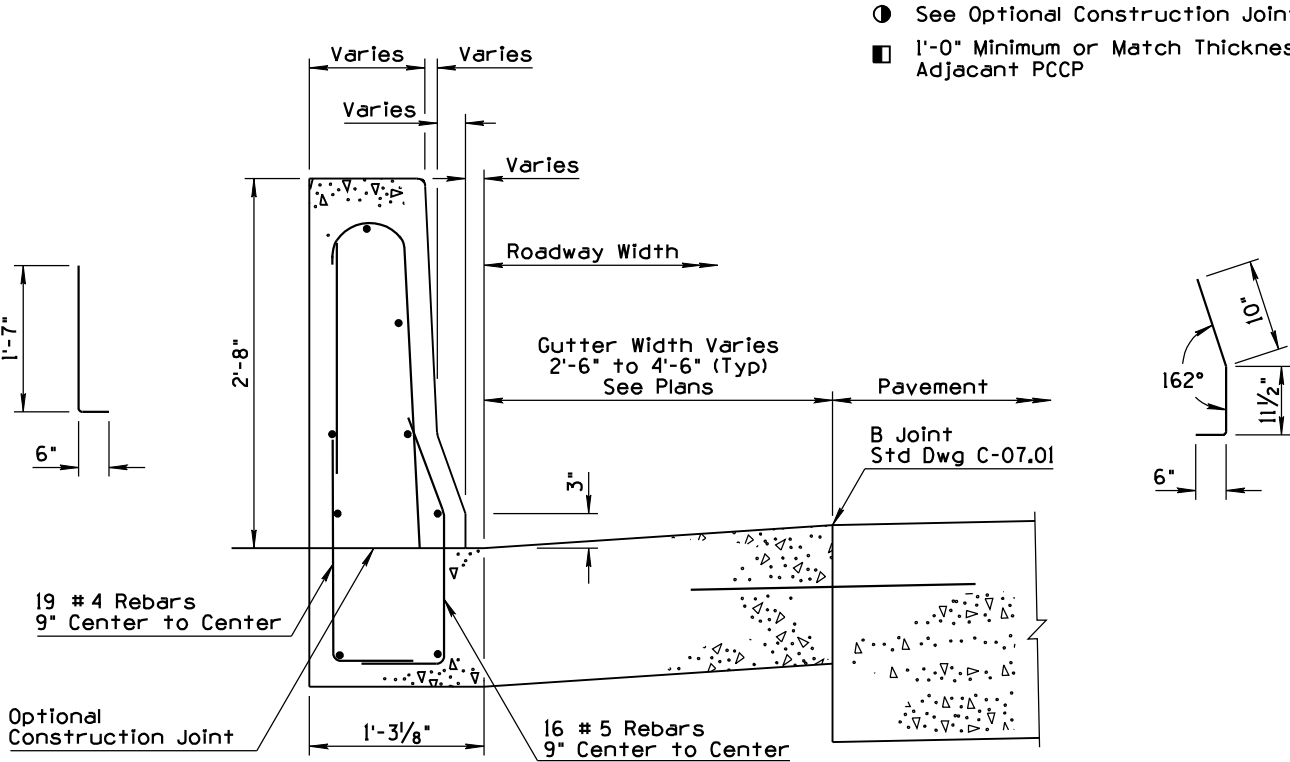
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	9/04
2	ADDED REFERENCE	RLF	9/04
3	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
4	REVISED NOTE	RLF	7/05



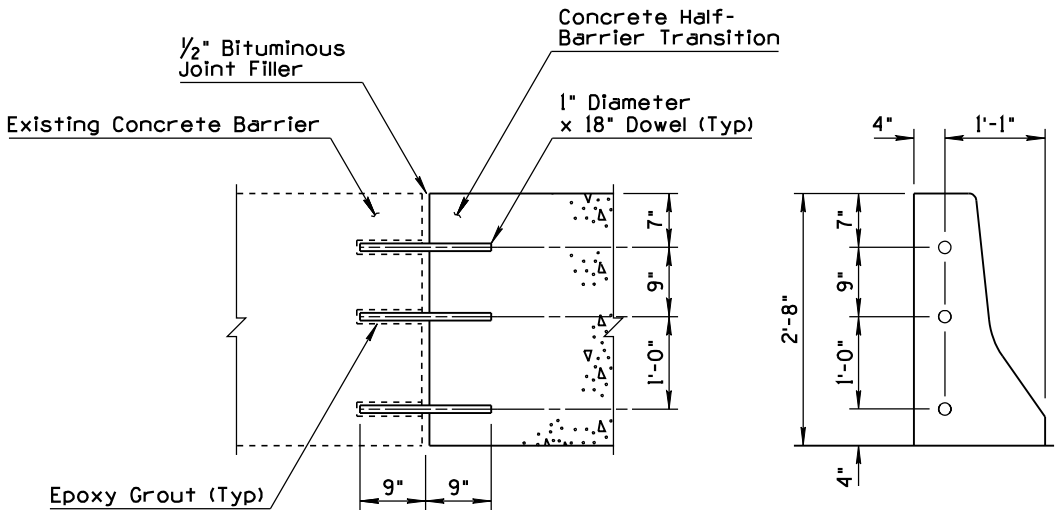
SECTION A-A



SECTION C-C



SECTION B-B



JOINT ASSEMBLY

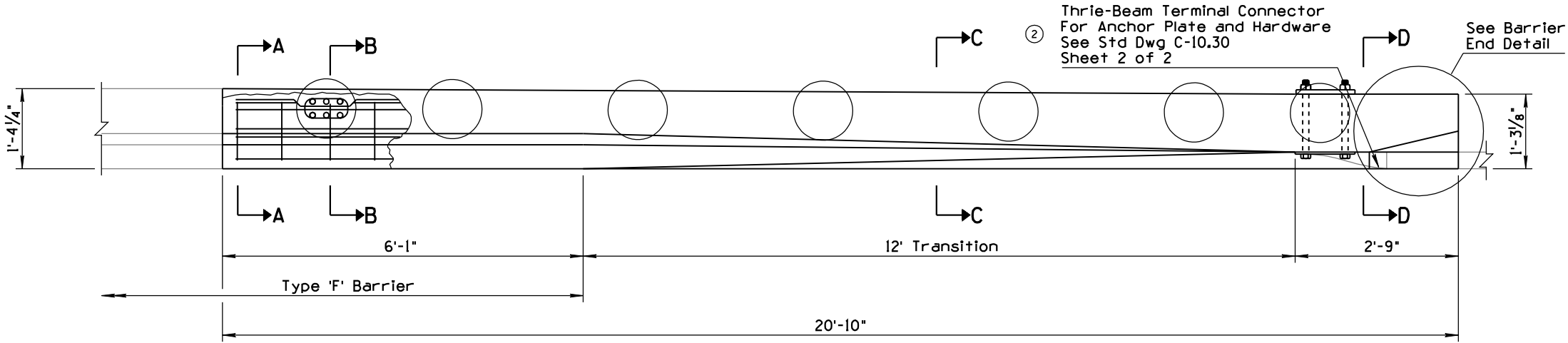
DOWEL LOCATIONS

CONSTRUCTION JOINT DETAIL (OPTIONAL)

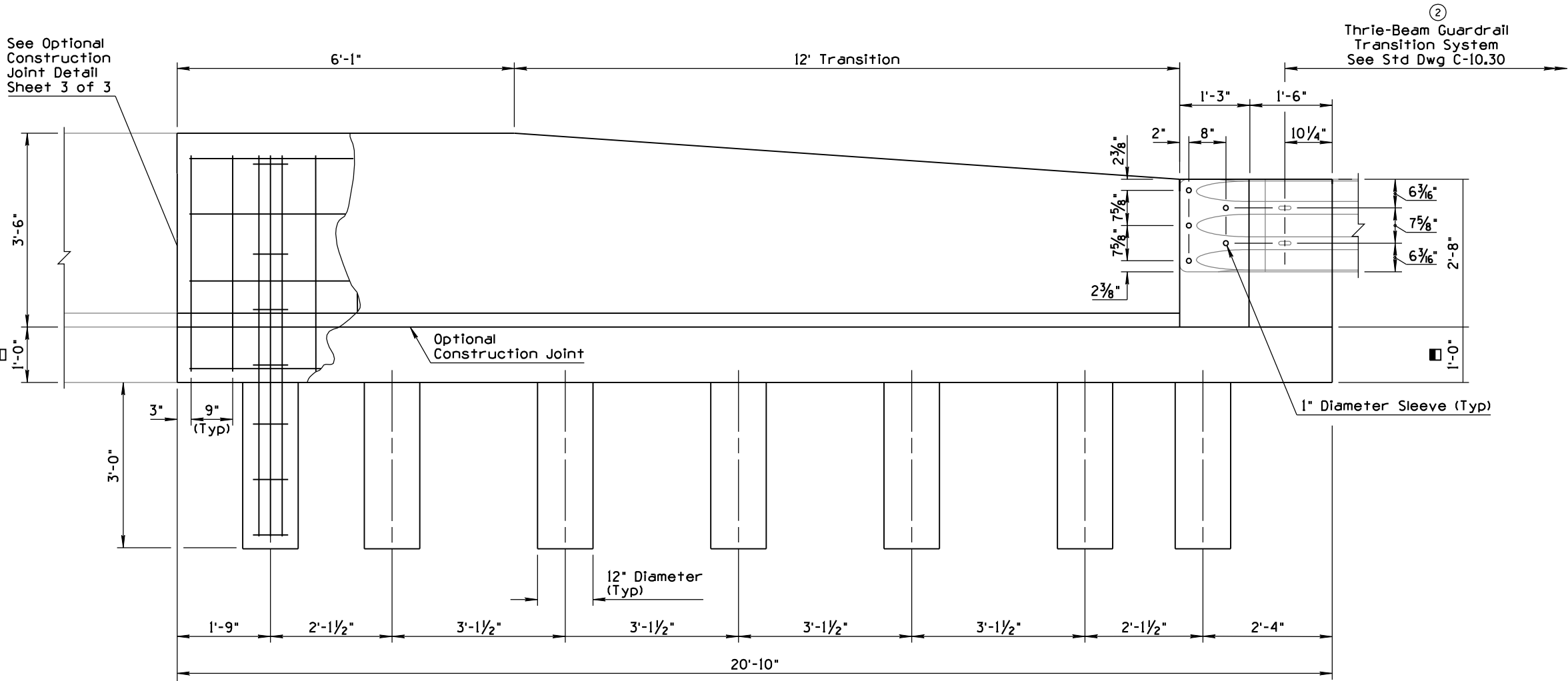
- See Optional Construction Joint Detail
- 1'-0" Minimum or Match Thickness of Adjacent PCCP

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CURB & GUTTER	DRAWING NO. ① C-10.71 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2	REVISED NOTE	RLF	7/05
3			
4			



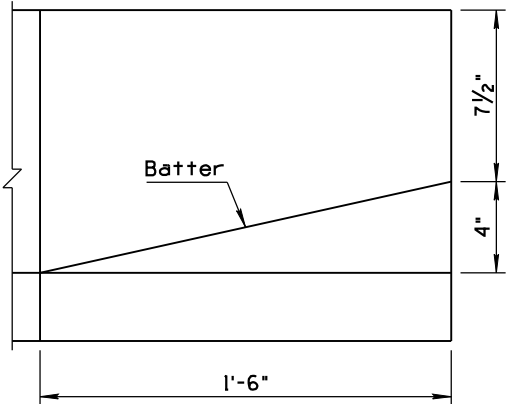
PLAN



ELEVATION  
BARRIER WITHOUT CURB

GENERAL NOTES

- Concrete shall be Class S,  $f'_c=4000$  PSI.
  - All rebar shall have 2" minimum clear cover unless otherwise noted.
  - All bend dimensions for rebar are out-to-out of rebars.
- 1'-0" Minimum or Match Thickness of Adjacent PCCP

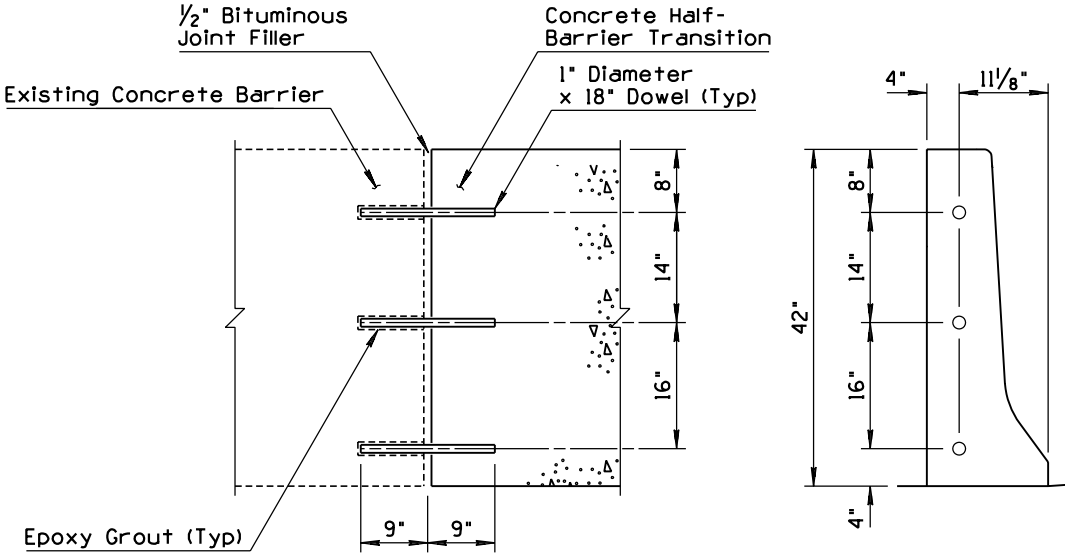


BARRIER END DETAIL

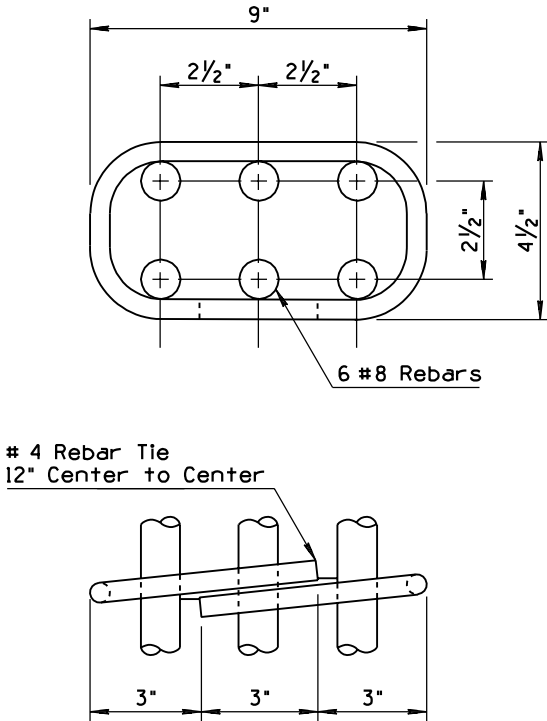
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS	DRAWING NO. ① C-10.72 Sheet 1 of 3



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



JOINT ASSEMBLY  
CONSTRUCTION JOINT DETAIL  
(OPTIONAL)  
DOWEL LOCATIONS



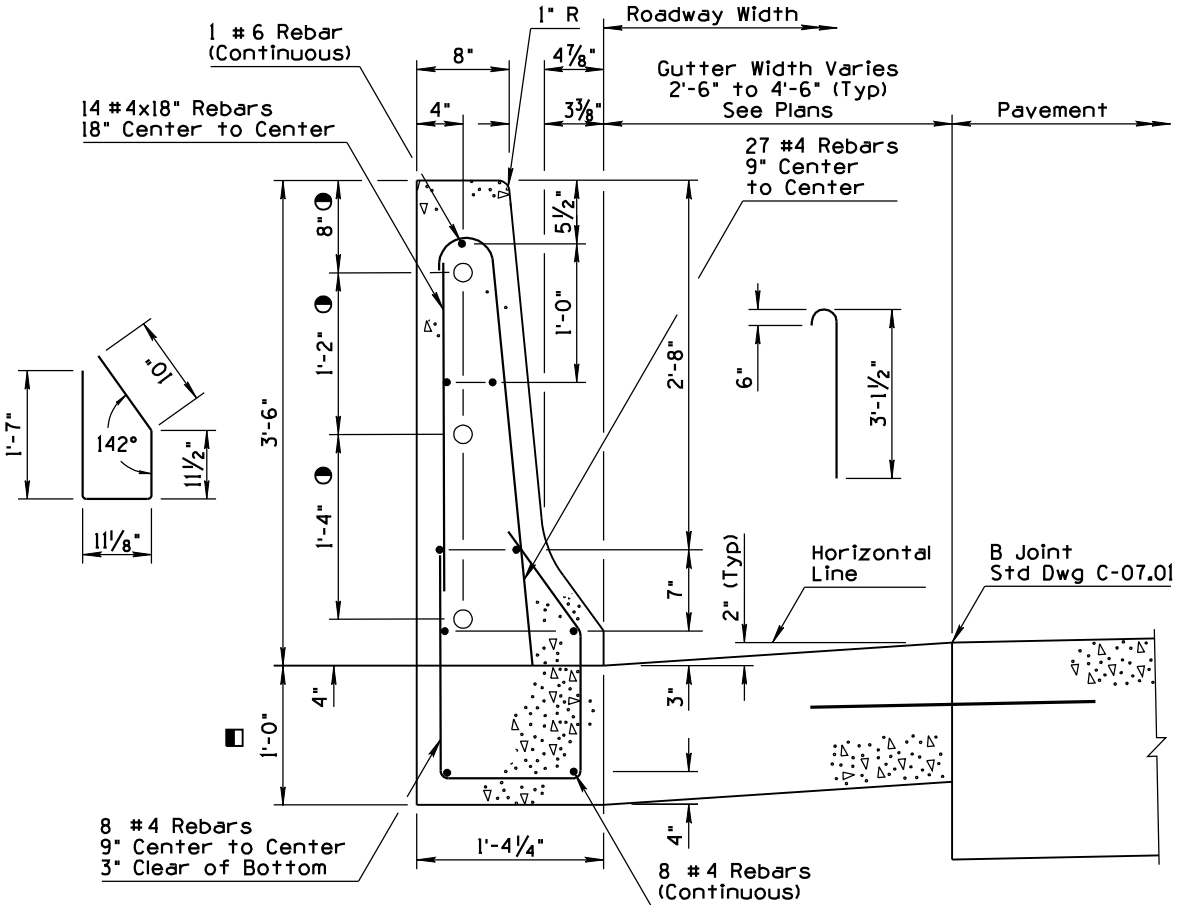
CAISSON REINFORCEMENT

2

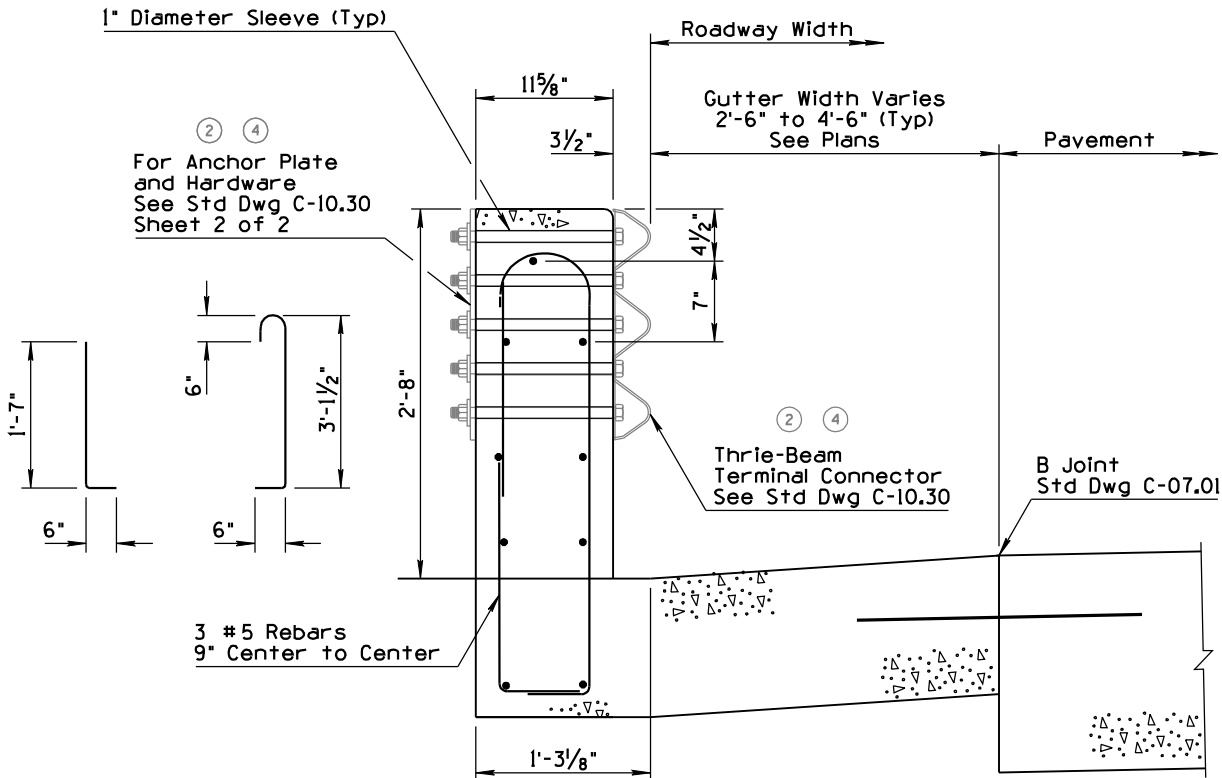
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS ①	DRAWING NO. C-10.72 Sheet 3 of 3



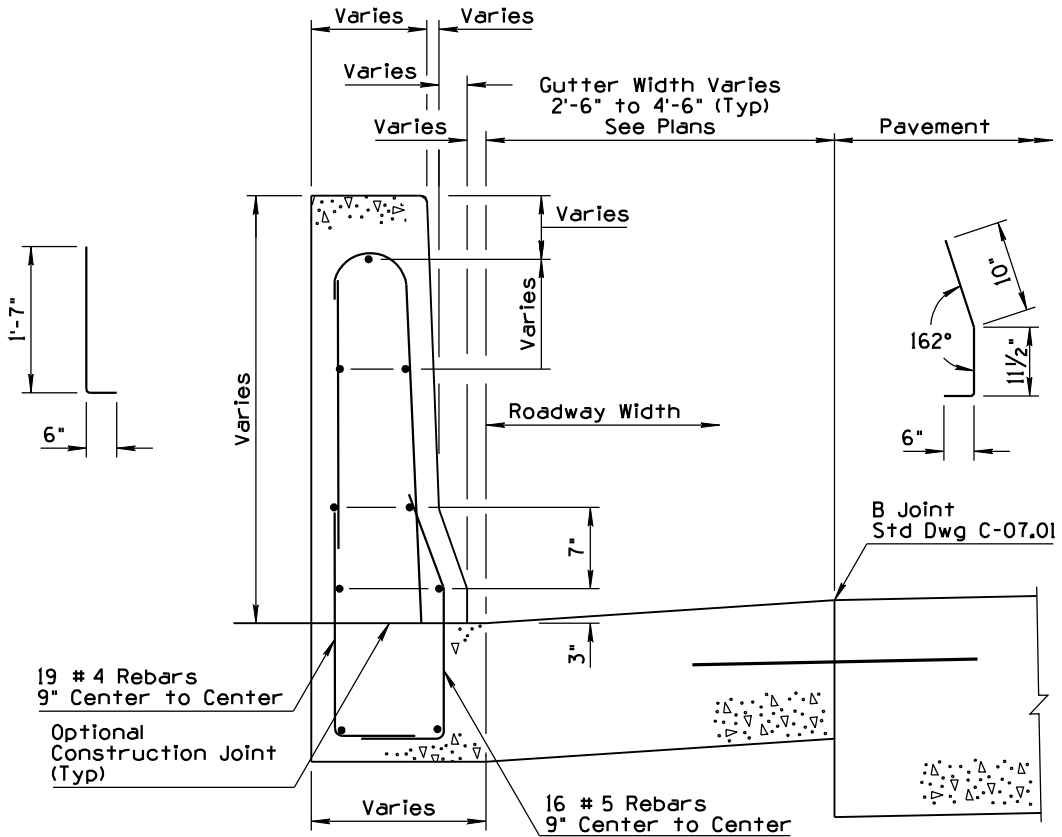
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	ADDED REFERENCE	RLF	9/04
3	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
4	REVISED NOTE	RLF	7/05



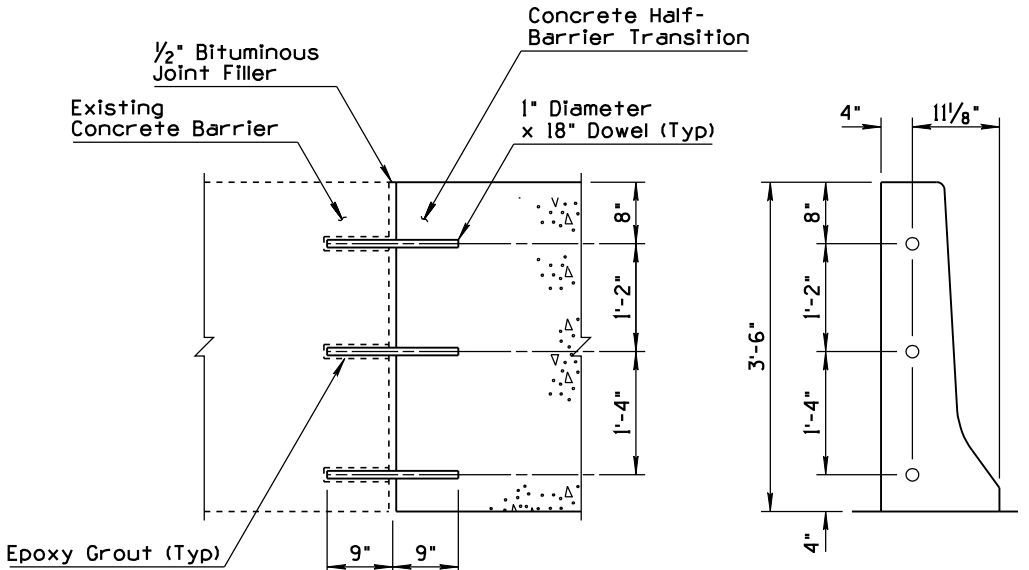
SECTION A-A



SECTION C-C



SECTION B-B



JOINT ASSEMBLY

DOWEL LOCATIONS

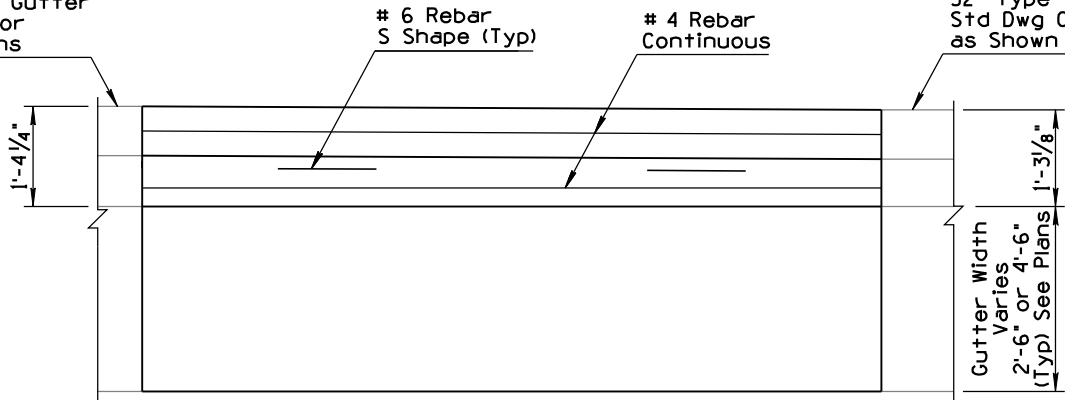
CONSTRUCTION JOINT DETAIL  
(OPTIONAL)

- See Optional Construction Joint Detail
- 1'-0" Minimum or Match Thickness of Adjacent PCCP

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.73 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.86 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 2	RLF	9/04
3	REVISED SECTION A-A	RLF	9/04
4	REMOVED DIMENSION	RLF	7/05

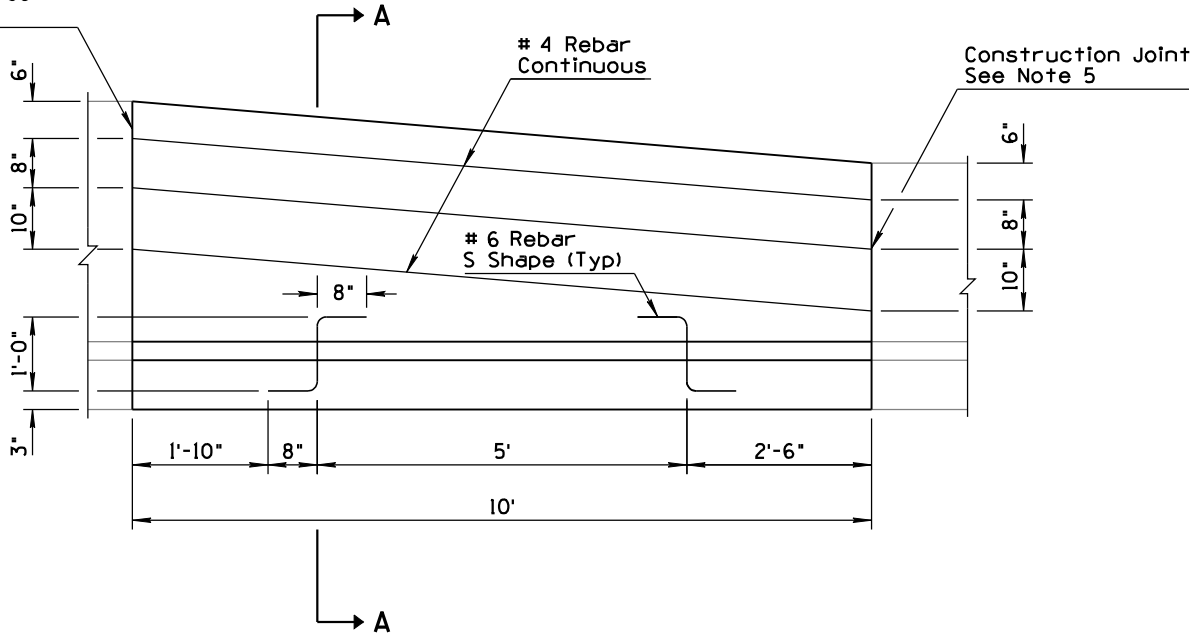
Concrete Half Barrier  
42" Type 'F' with Gutter  
Std Dwg C-10.53 or  
as Shown on Plans



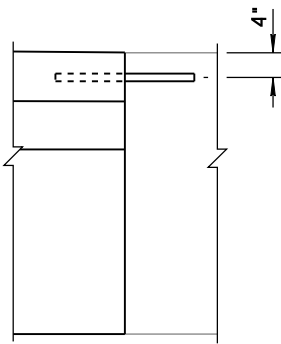
Concrete Half Barrier  
32" Type 'F' with Gutter  
Std Dwg C-10.52 or  
as Shown on Plans

PLAN

Construction Joint  
See Note 5

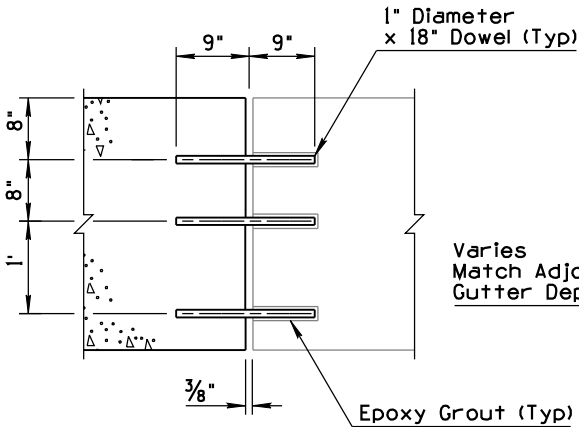


ELEVATION



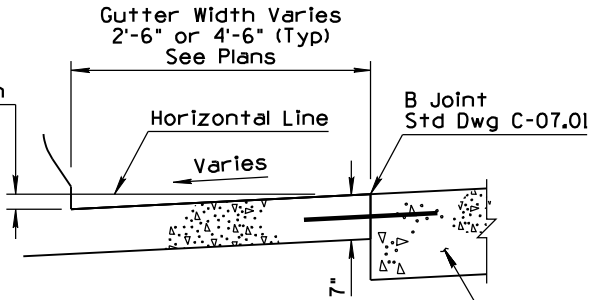
PLAN

CONSTRUCTION JOINT DETAIL  
(OPTIONAL)



ELEVATION

Varies  
Match Adjoining  
Gutter Depression

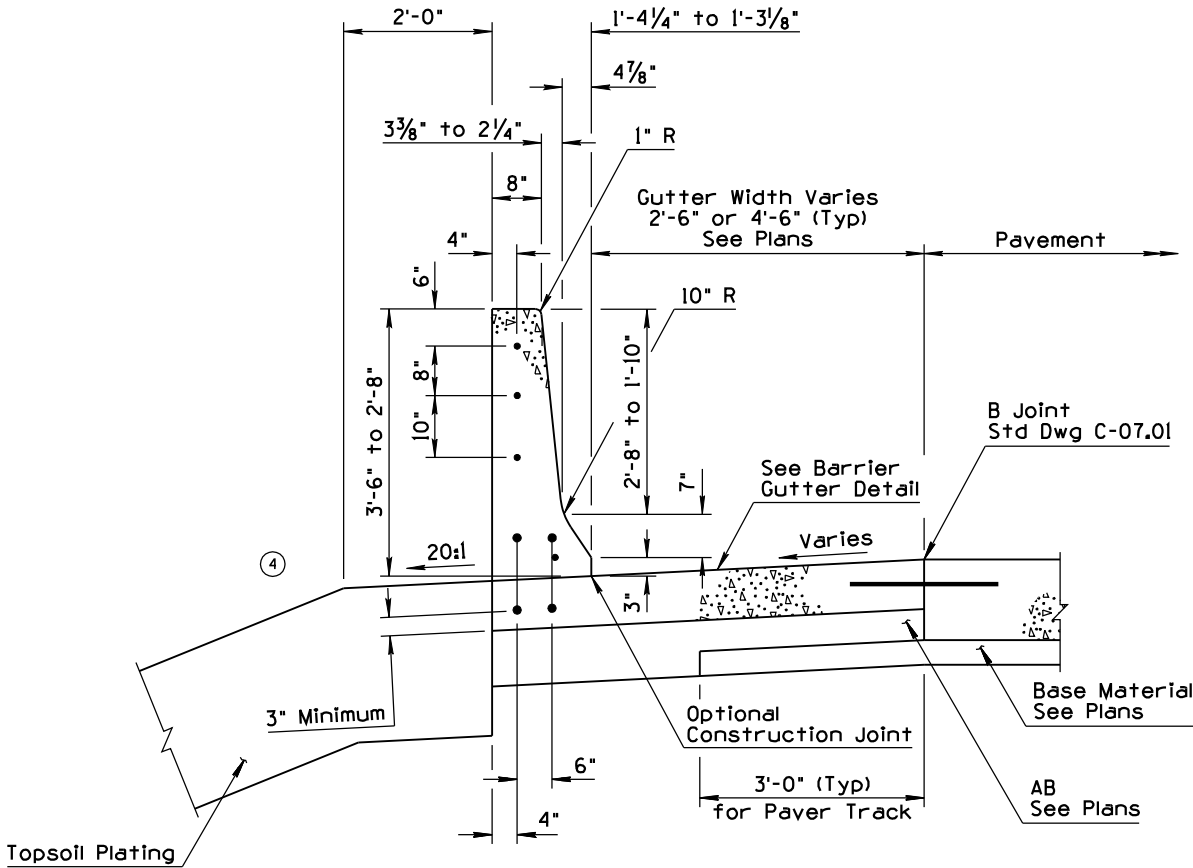


BARRIER GUTTER DETAIL

PCCP  
See Plans

## GENERAL NOTES

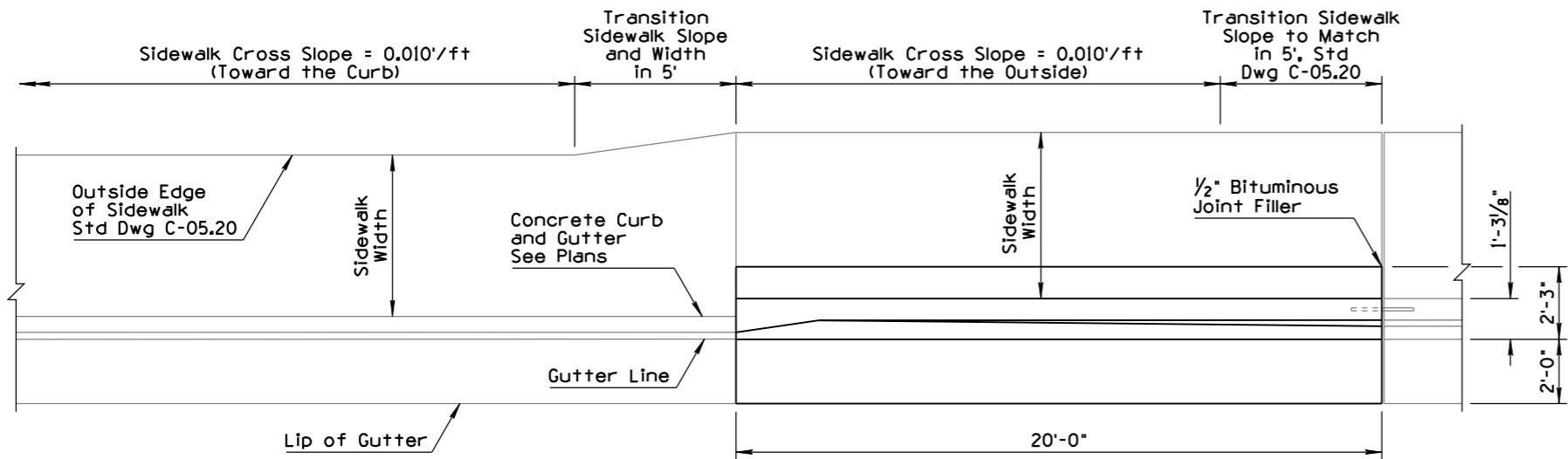
- Half-Barrier Transition shall be constructed by the formed cast-in-place method.
- Concrete shall be Class S,  $f'_c=4000$  PSI.
- If the footing and barrier are cast monolithically, # 6 S shape rebars are not required.
- Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
- # 4 rebar shall extend 12" past the construction joint at the completion of the day's pour.
- Thickness of gutter, "D" can be adjusted to match the PCCP thickness, as approved by the Engineer.
- Two-inch deep construction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.



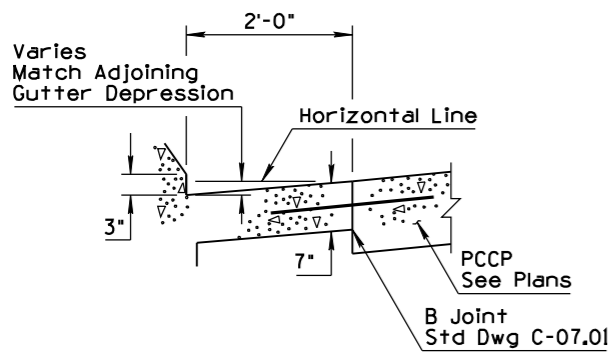
SECTION A-A

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION 42" TO 32" TYPE 'F'	DRAWING NO. ① C-10.74

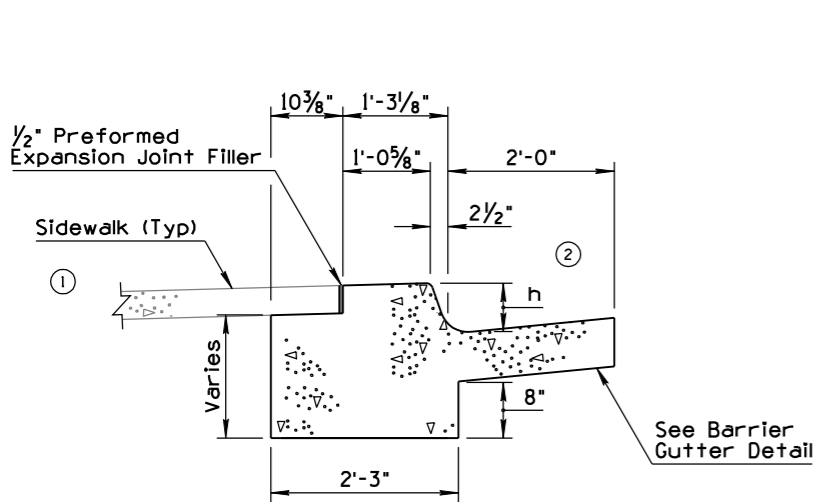
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SECTION VIEW GRAPHICS	RLF	4/06
2	REVISED 'H' HEIGHT DESIGNATION TO 'h'	RLF	4/06
3			
4			



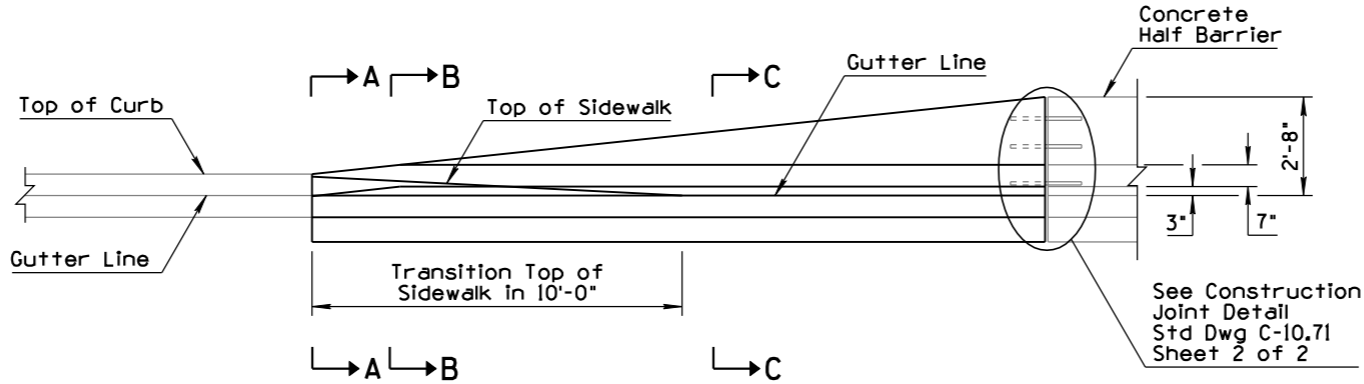
PLAN



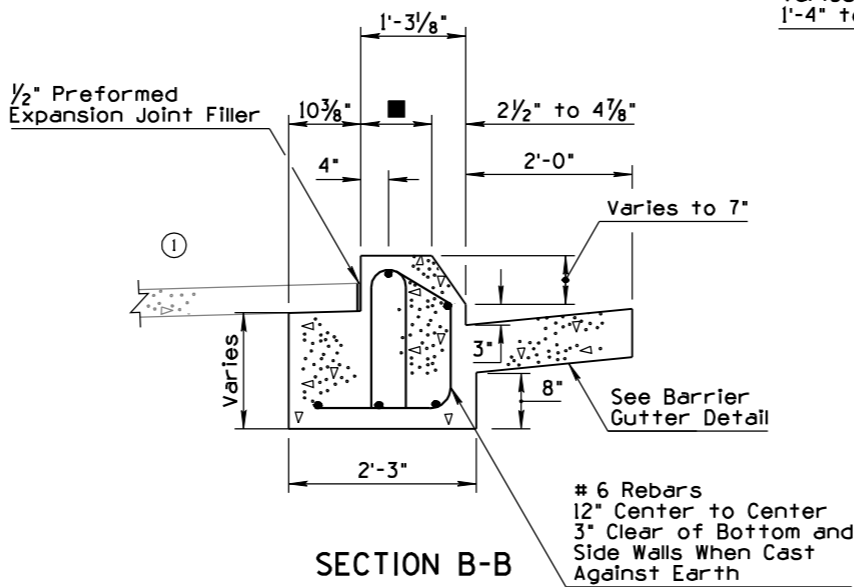
BARRIER GUTTER DETAIL



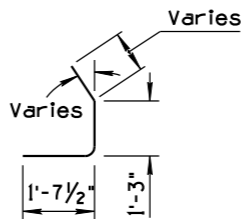
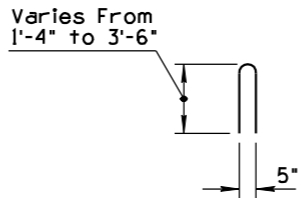
SECTION A-A



ELEVATION



SECTION B-B

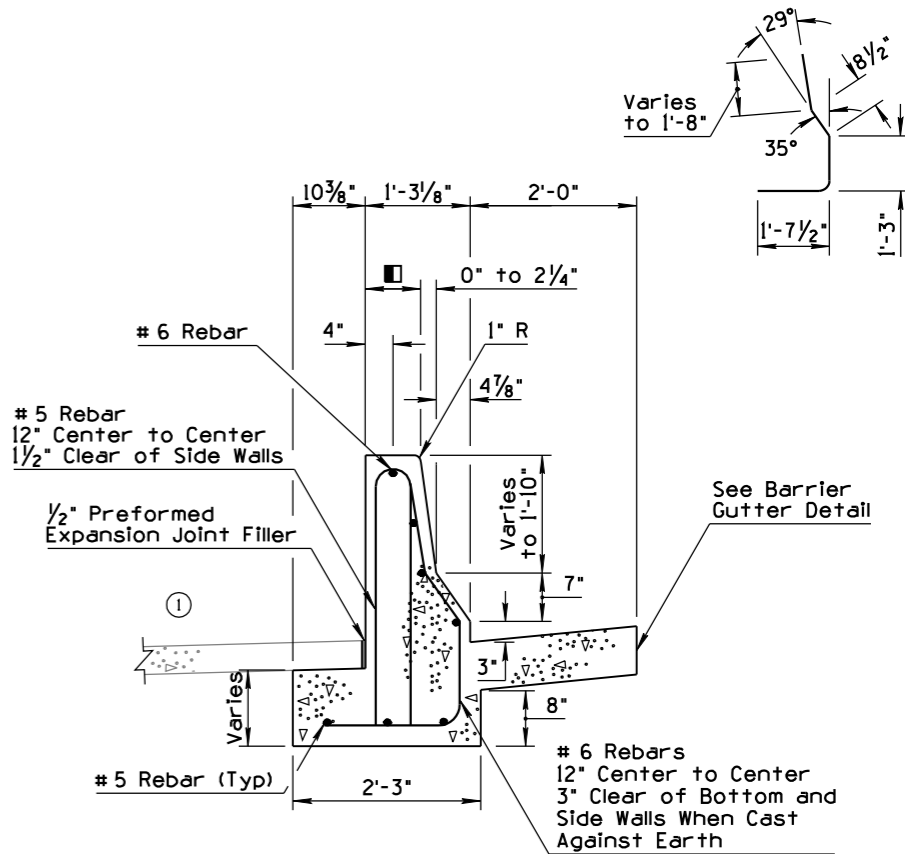


GENERAL NOTES

1. All concrete shall be Class S, f'c=4000 PSI.
2. All rebar shall conform to Std Spec 1003.
3. All rebar shall have 2" minimum clear cover unless otherwise noted.
4. See drainage sheets for slotted drain and catch basin details.
5. Barrier transition shall match both adjoining curb and gutter and concrete Half Barrier.
6. See Std Dwg C-05.20 for sidewalk construction.
7. All bend dimensions for rebar are out-to-out of rebars.
8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.

■ 10 1/4" to 8"

■ 1'-0 5/8" to 10 1/4"



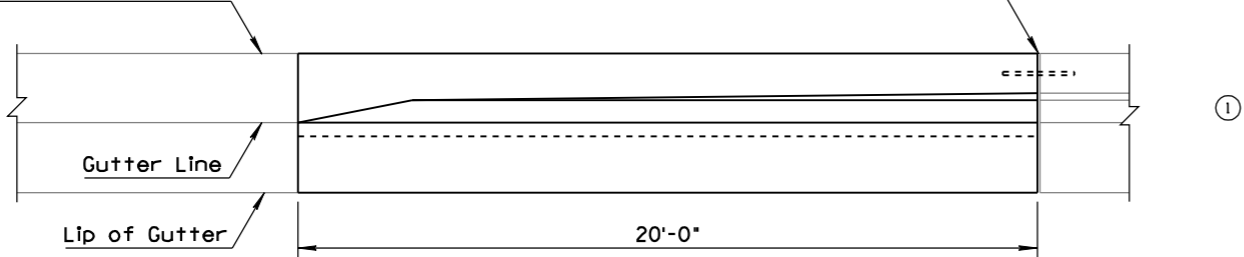
SECTION C-C  
TRANSITION TO VERTICAL TYPE CURB

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' TANGENT DEPARTURE TYPE 1	DRAWING NO. C-10.75 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED DIMENSIONS	RLF	4/06
2			
3			
4			

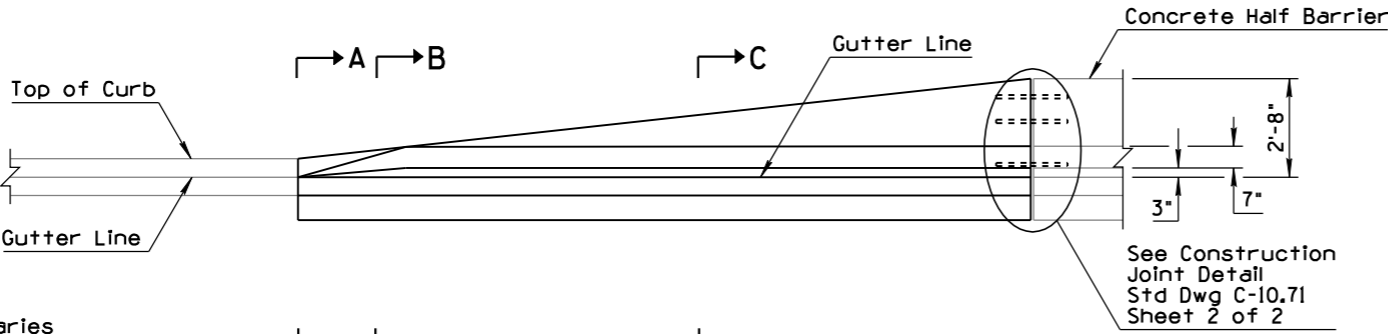
Concrete Curb & Gutter  
Type B or C  
Std Dwg C-05.10  
See Plans

1/2" Bituminous  
Joint Filler

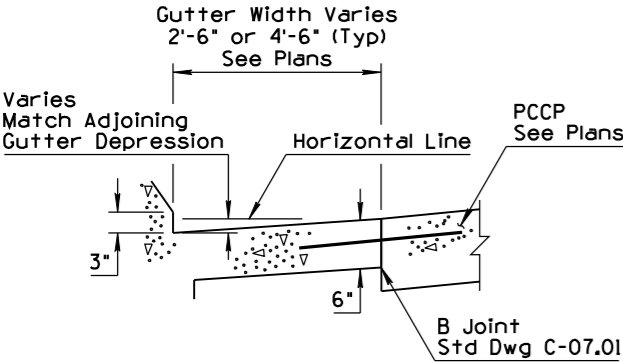


PLAN

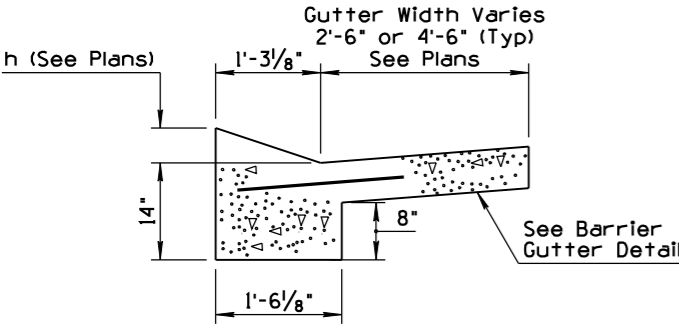
Traffic  
←



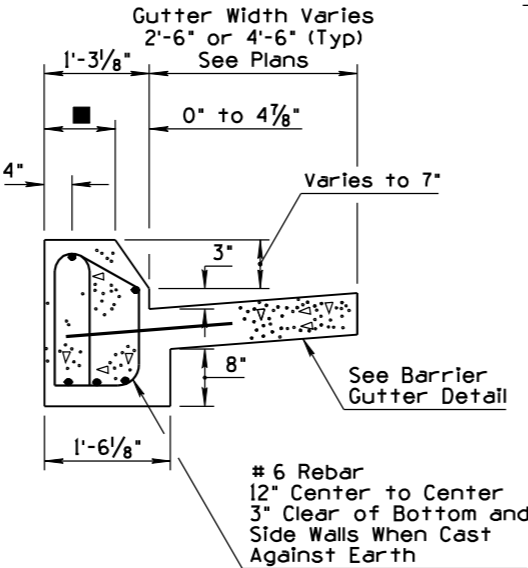
ELEVATION



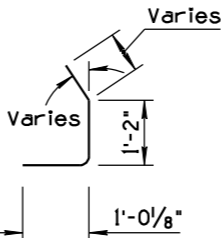
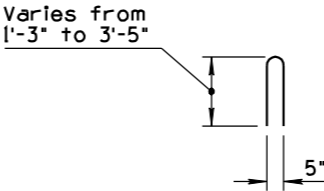
BARRIER GUTTER DETAIL



SECTION A-A

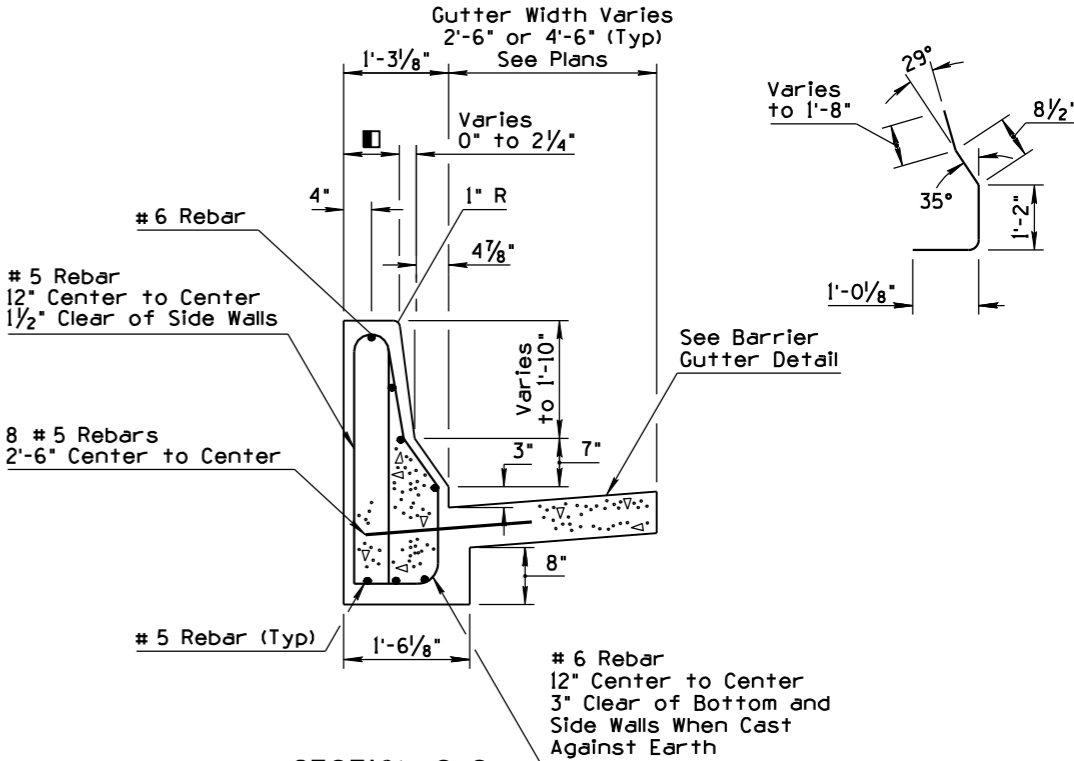


SECTION B-B



GENERAL NOTES

1. All concrete shall be Class S f'c=4000 PSI.
  2. All rebar shall conform to Std Spec 1003.
  3. All rebar shall have 2" minimum clear cover unless otherwise noted.
  4. See drainage sheets for slotted drain and catch basin details.
  5. Barrier transition shall match both adjoining curb and gutter and concrete half barrier.
  6. All bend dimensions for rebar are out-to-out of bars.
  7. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.
- Varies 10 1/4" to 8"
- Varies 1'-3 1/8" to 10 1/4"



SECTION C-C

TRANSITION TO FREEWAY CURB

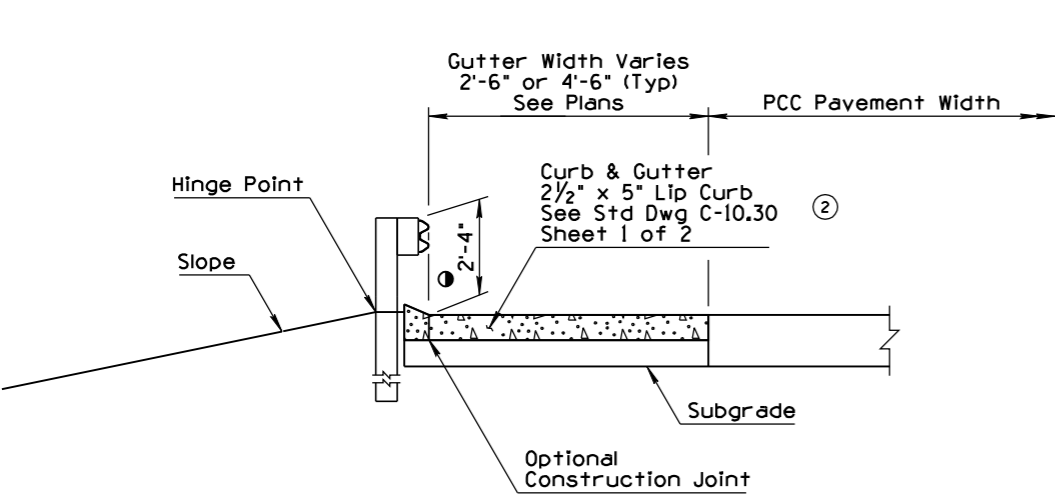
APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' TANGENT DEPARTURE TYPE 2	DRAWING NO. C-10.75 Sheet 2 of 2

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' AT RADIUS 32" TO 0"	DRAWING NO. ① C-10.76

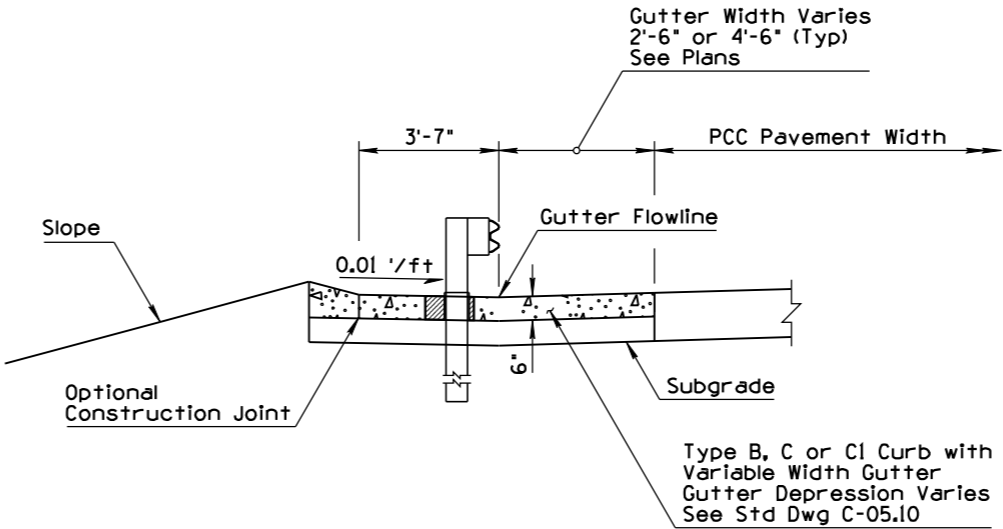
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-10.06 AND REVISED TITLE	RLF	9/04
2	MODIFIED REFERENCE	RLF	4/06
3	MODIFIED REFERENCE & DRAWING DATE	RLF	6/06
4			

GENERAL NOTES

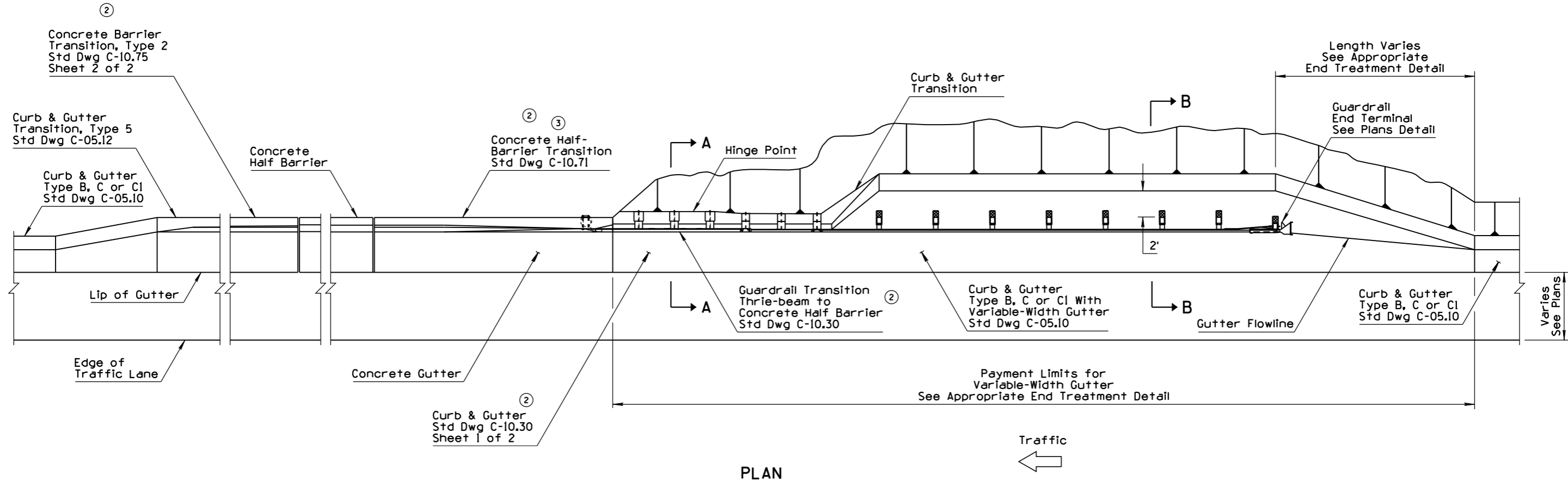
- See plans and barrier summary sheets for location and type of guardrail and end treatments. Timber post installation shown.
  - See Std Dwgs C-05.10, 05.12, 10.01 and 10.02 for dimensions and details not shown.
  - Type B guardrail installation shown. For Type A guardrail installation, use Type D-1 Curb and Gutter instead of the Type D-2 Curb and Gutter shown.
  - See plans for type and location of drainage facilities.
  - Bituminous joint filler ( $\frac{1}{2}$ " ) shall be placed when the curb & gutter or concrete widening abuts slotted drains, catch basins, dados, barrier, etc. Scored joints, 2" in depth, shall be placed to match adjacent joints in PCCP or at 15' intervals when adjacent to AC or continuously reinforced concrete pavement.
- ① To Top of W-Beam Guardrail



SECTION A-A



SECTION B-B



PLAN

APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 6/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CONCRETE HALF-BARRIER TRANSITION END TERMINAL CURB AND GUTTER ①	DRAWING NO. C-10.77 ①

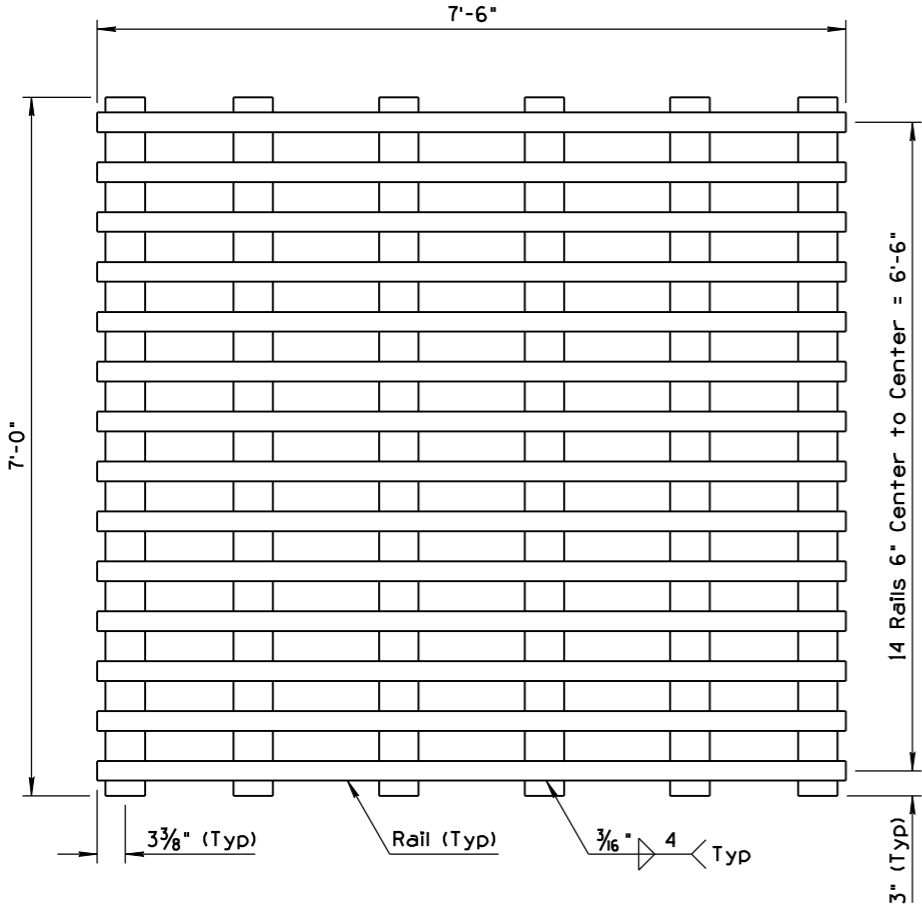
**GENERAL NOTES**

- Cattle guard shall include two (2) clamps per Sheet 4 at each gap between two (2) grill units, one at each end. Clamps shall be adjusted to provide a 1/4-inch, plus or minus 1/16-inch gap between adjacent grill units.
- Grill units shall be set on an angle iron assembly consisting of one piece of 6"x3 1/2"x3/8" angle iron and studs with a head. The studs shall be placed on 1'-0" alternate centers. See Angle Assembly Detail 2.
- Cattle guard shall be sloped to conform to the roadway grade and cross-section, except that where an odd number of grill units is specified in a crowned roadway, the center grill unit shall have a level cross slope.
- Where the adjacent roadway is paved, an angle iron assembly shall consist of one piece of 4"x4"x3/8" angle iron and studs with a head. The studs shall be placed on 1'-0" alternate centers. See Angle Assembly Detail 1.
- Where the adjacent roadway is unpaved, an angle iron assembly shall consist of one 4"x4"x3/8" angle iron, one 2"x2"x3/8" angle iron, and connected with studs. The assembly shall be crowned at the centerline and constructed with a bevel cut and welded. The studs shall be bent 90° and placed on 1'-0" centers. See Angle Assembly Detail 3.
- Each angle iron and angle iron assembly shall be fabricated to form a single piece for the full length of the cattle guard.
- Quantities shown for concrete and rebar are approximations for informational purposes only.
- When a gate is to be installed, it shall be called out on the plans.
- All rebar shall have a minimum cover of 3", or as shown on the plans.
- Cattle guard beams shall be HS-20 loading unless otherwise shown on the plans.

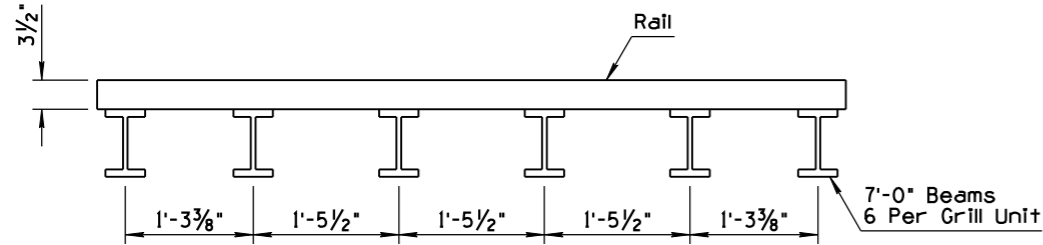
**UNIT TABLE**

Roadway Width (ft)	Grill Units Required	Concrete (Cu Yd)	Rebar (Lbs)
12	2	5.8	175
16	3	8.0	240
20	4	10.3	310
28	5	12.5	375
34	6	14.7	445
36	6	14.7	445
38	7	16.9	510
40	7	16.9	510

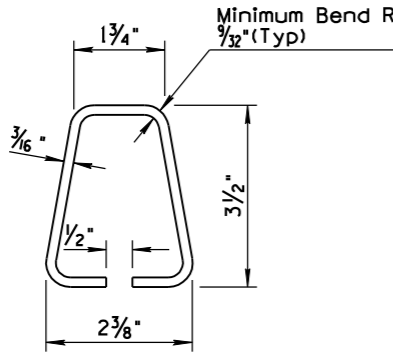
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2	MODIFIED AND MOVED WELDING SPECIFICATION	RLF	4/06
3			
4			



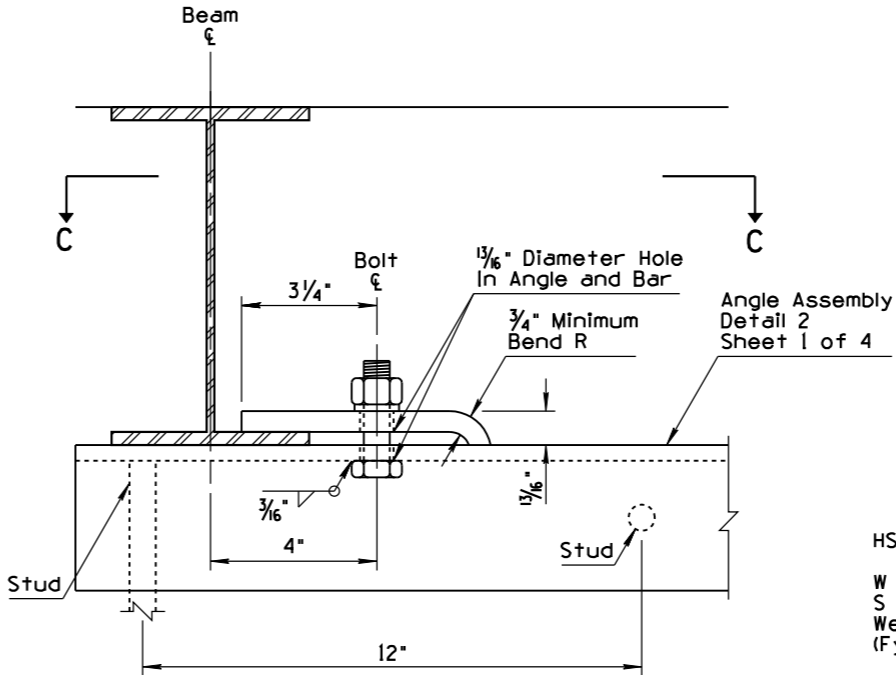
PLAN



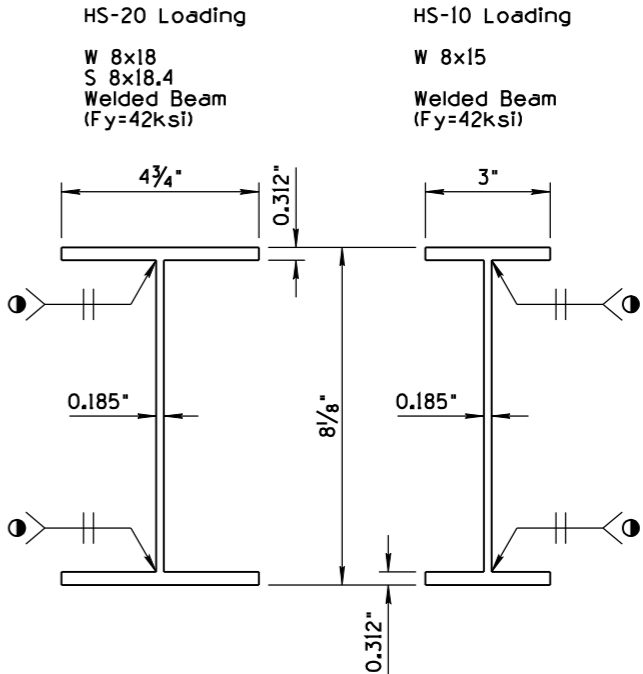
ELEVATION



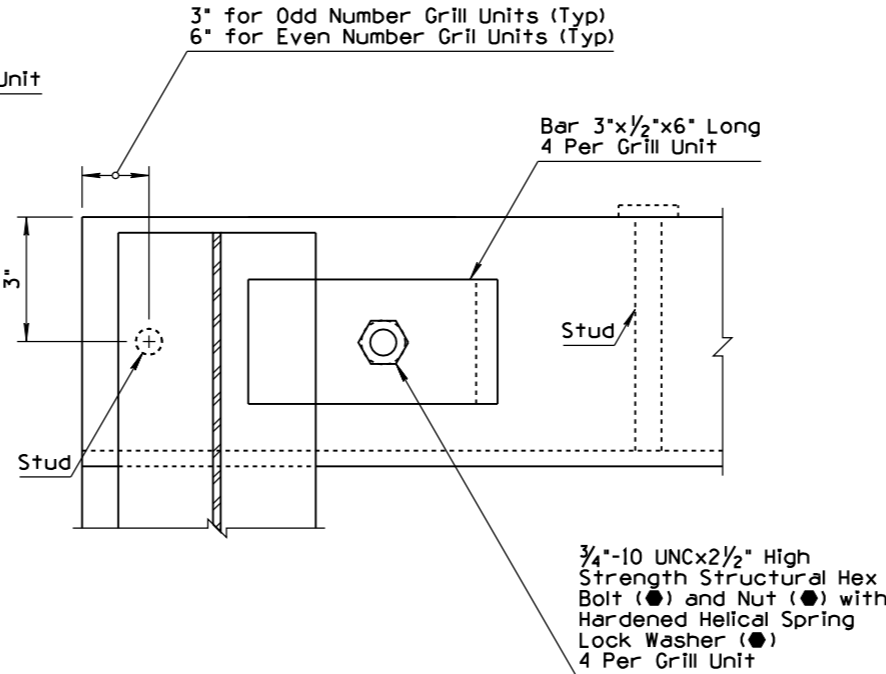
RAIL  
GRILL UNIT



GRILL VERTICAL CLAMP



BEAMS

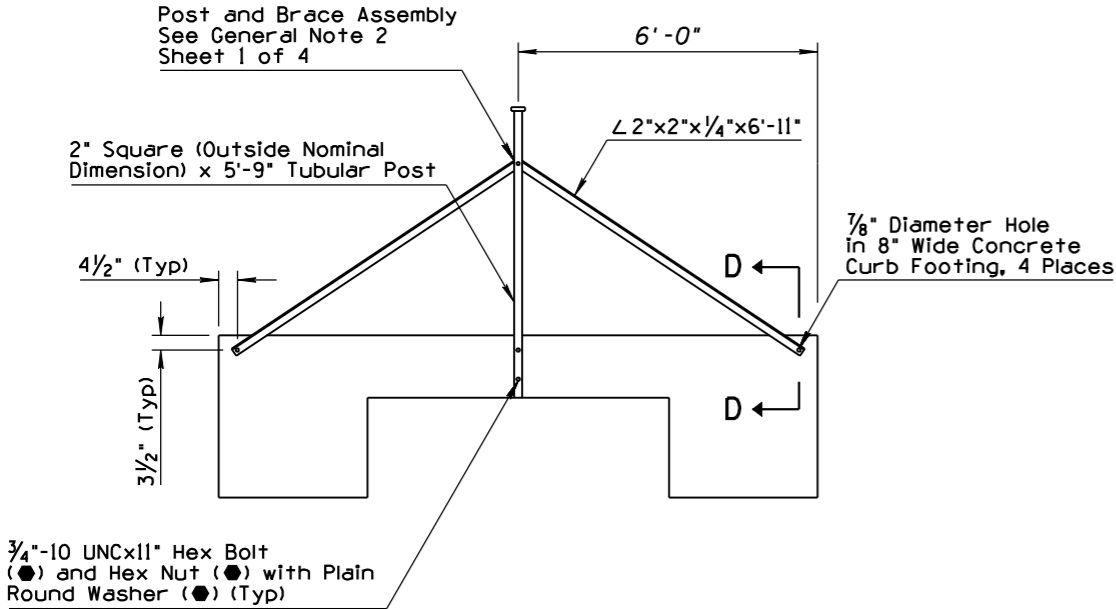


SECTION C-C

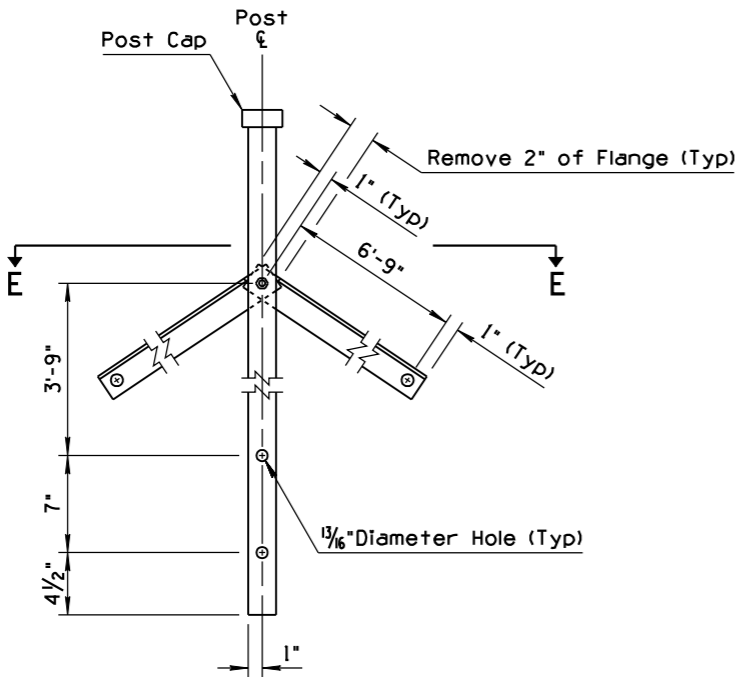
- - Indicates AASHTO, AGC & ARTBA Task Force 13 designation
- ② ● Full-penetration arc weld

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	ROADWAY CATTLE GUARD	DRAWING NO. C-11.10 Sheet 2 of 4

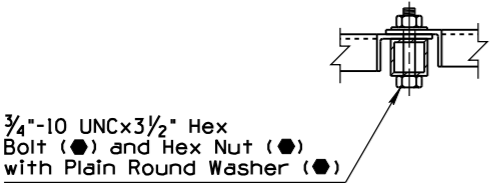
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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2			
3			
4			



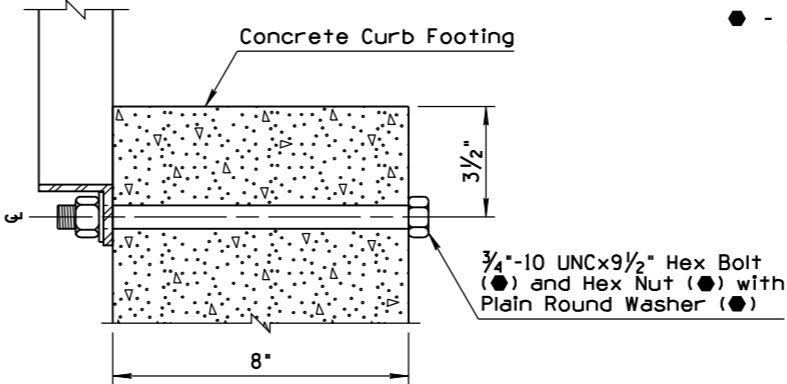
END VIEW



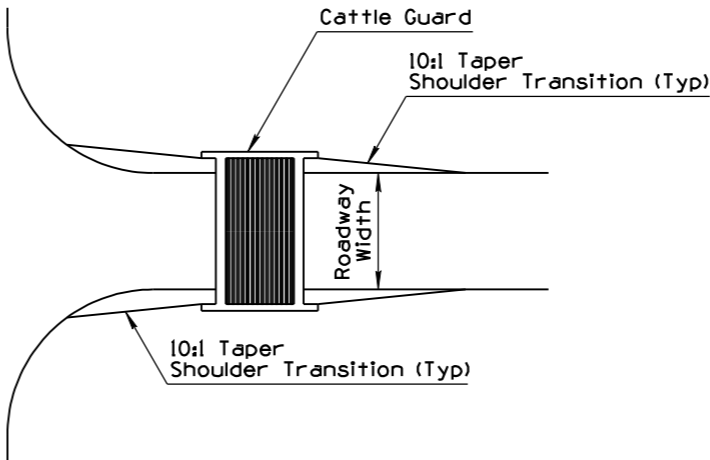
POST AND BRACE ASSEMBLY



SECTION E-E



SECTION D-D



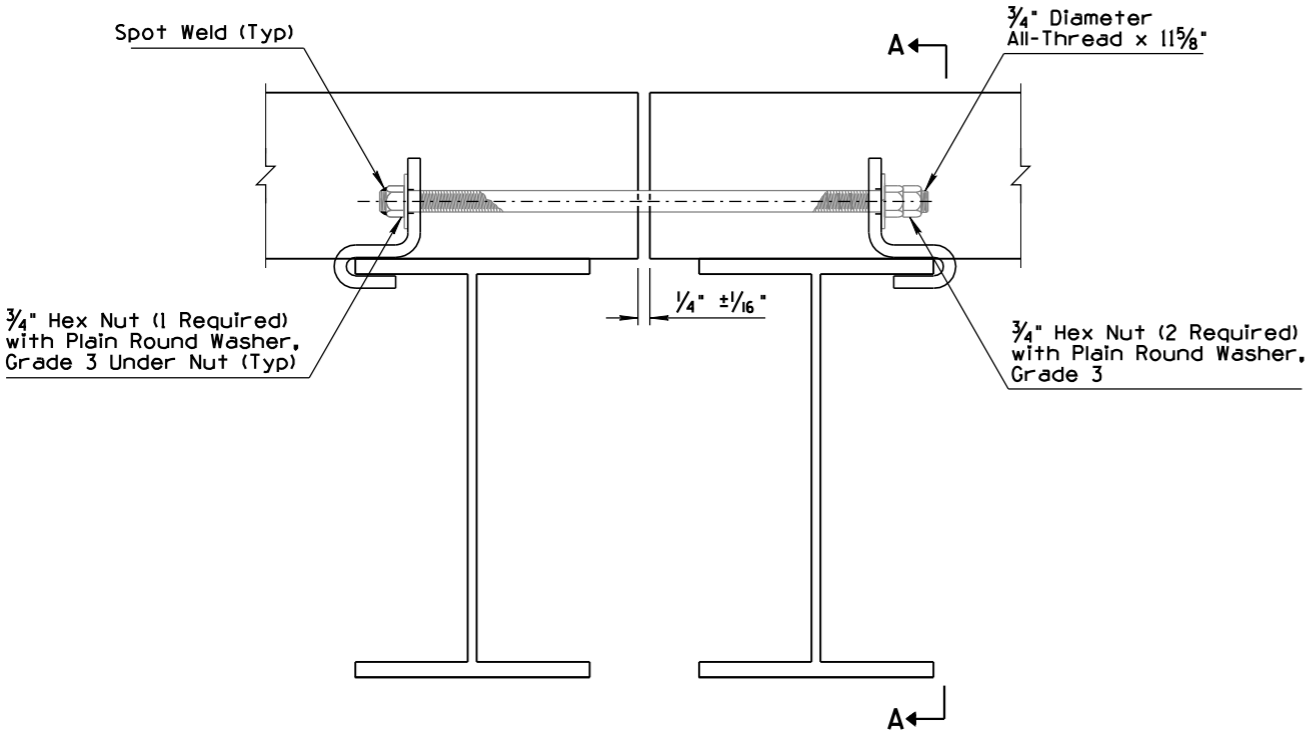
SHOULDER TRANSITION AT CATTLE GUARDS

GENERAL NOTES

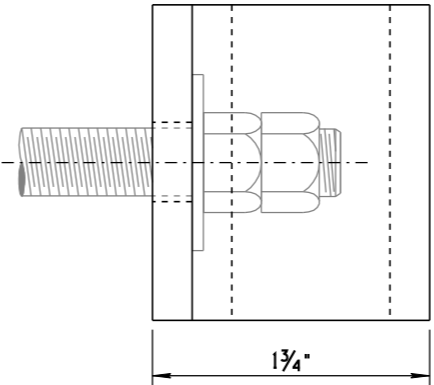
1. Material for shoulder transition shall be placed to the finished roadway elevation for the entire length of the transition. When the roadway is paved, aggregate subbase or AB shall be used. When the roadway is unpaved, a material equivalent to the existing roadway shall be used.
  2. On steeper grades, the post shall be installed plumb to align with adjacent fencing. The brace assembly may be modified as necessary to support the post.
- - Indicates AASHTO, AGC & ARTBA Task Force 13 designation

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	ROADWAY CATTLE GUARD	DRAWING NO. ① C-11.10 Sheet 3 of 4

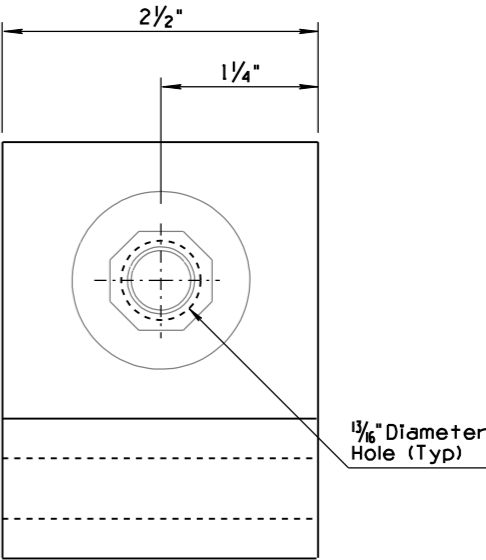
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD DWG	RLF	4/06
2			
3			
4			



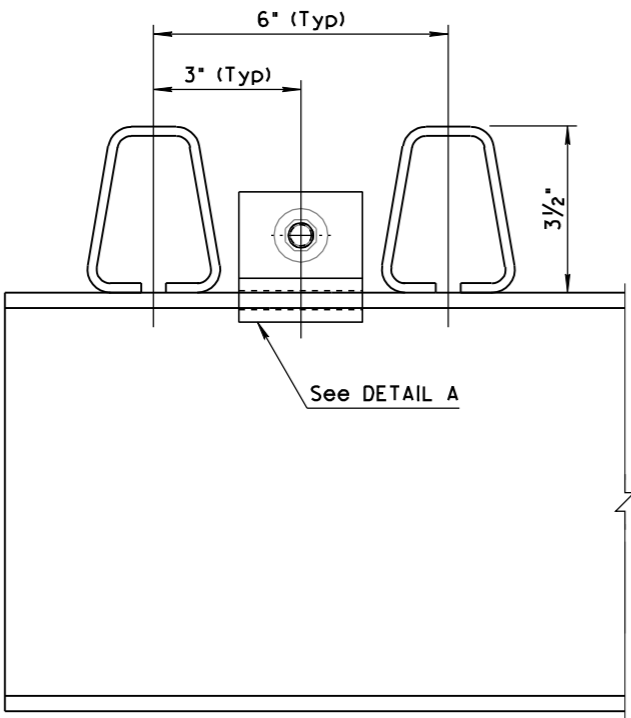
ELEVATION



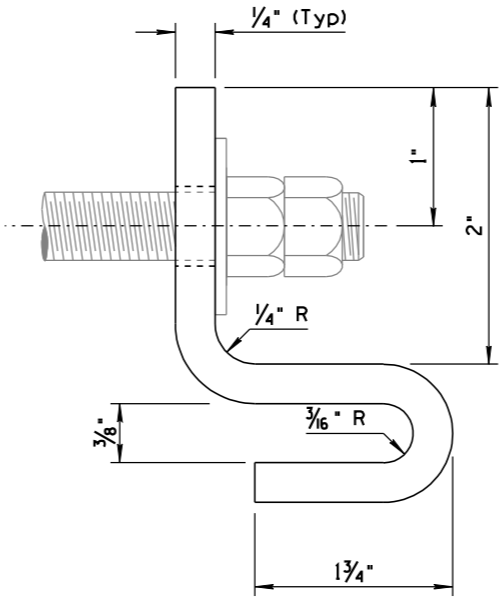
PLAN



DETAIL A



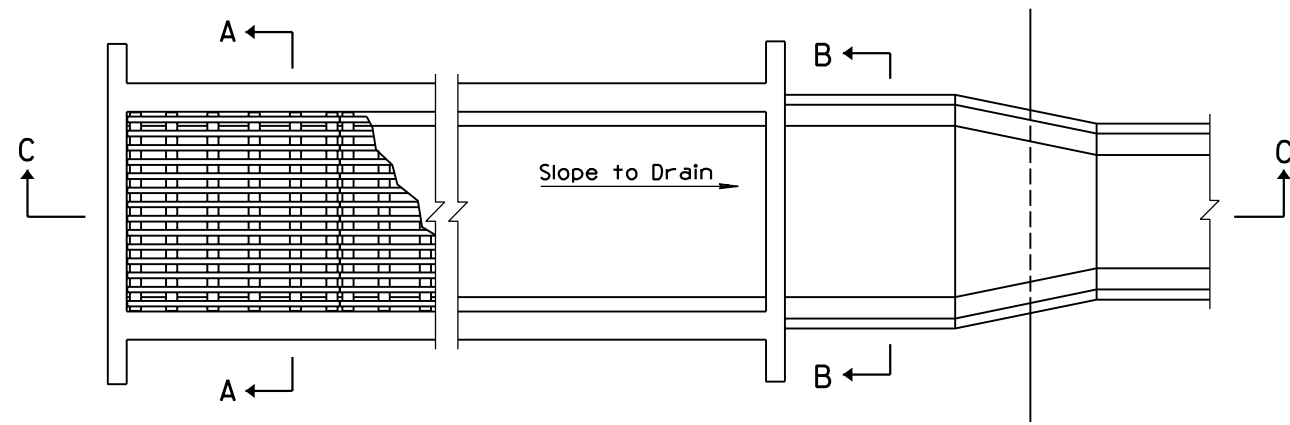
SECTION A-A



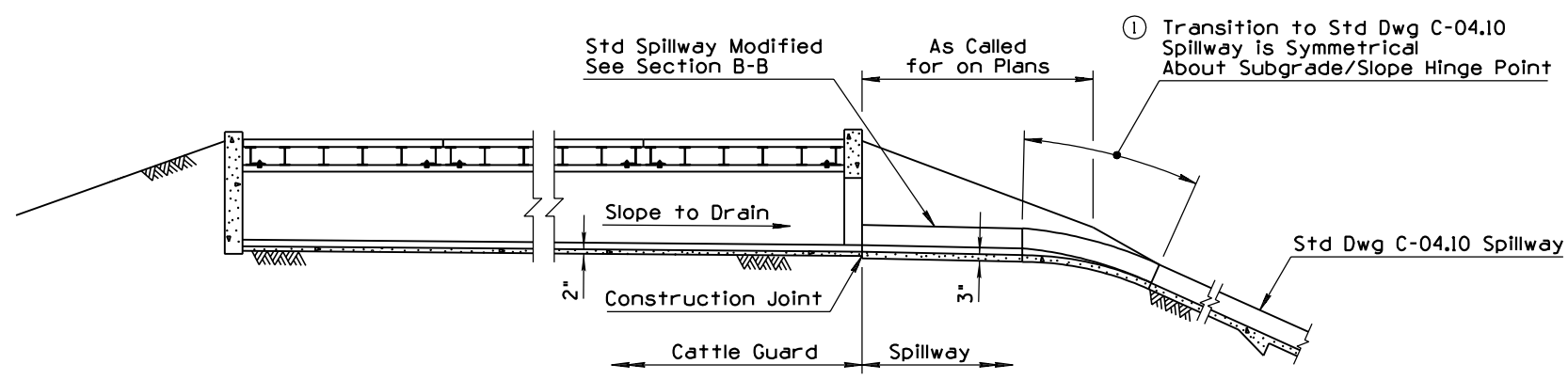
ELEVATION

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	ROADWAY CATTLE GUARD GRILL HORIZONTAL CLAMP	DRAWING NO. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span> C-11.10 Sheet 4 of 4

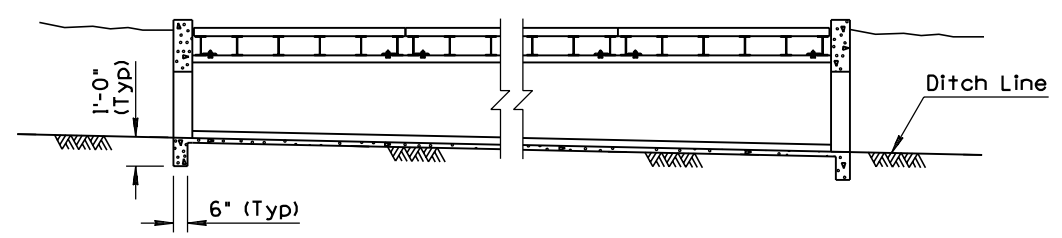
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED NOTE	PNB	7/94
2			
3			
4			



PLAN



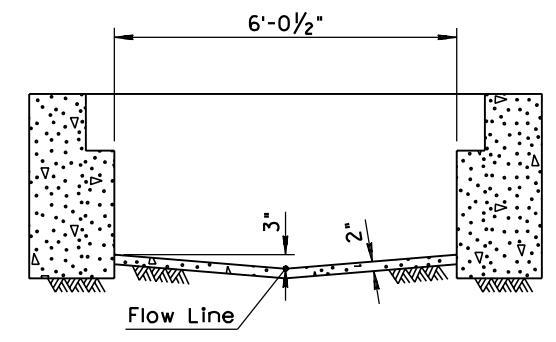
SECTION C-C  
IN EMBANKMENT



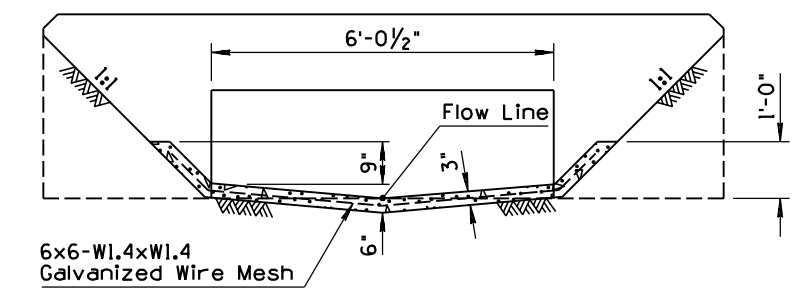
SECTION C-C  
WHERE USED FOR THROUGH DRAINAGE-  
CATTLE GUARD OPEN BOTH ENDS

GENERAL NOTES

1. See Std Dwg C-11.10 for all other Cattle Guard details.
2. This standard shall be used in embankment or where highly erodable soil is found.
3. All concrete shall be Class B.



SECTION A-A

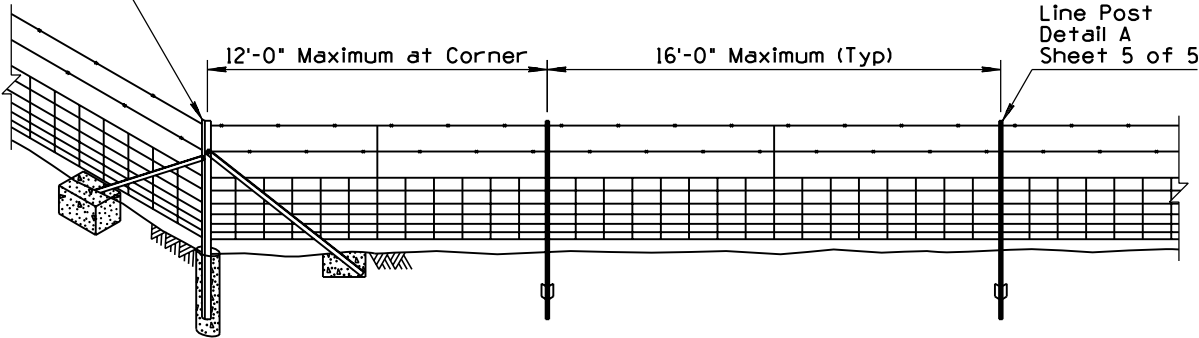


SECTION B-B

APPROVED FOR DESIGN <i>May Vipanina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATTLE GUARD, DRAINAGE	DRAWING NO. C-11.20

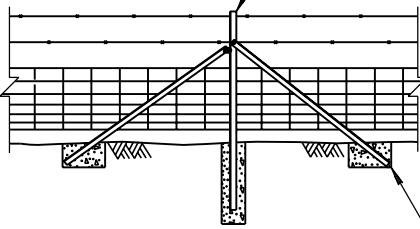
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED ASTM CALLOUT	PNB	7/94
2			
3			
4			

Corner Post Assembly  
Detail D  
Sheet 5 of 5



Line Post  
Detail A  
Sheet 5 of 5

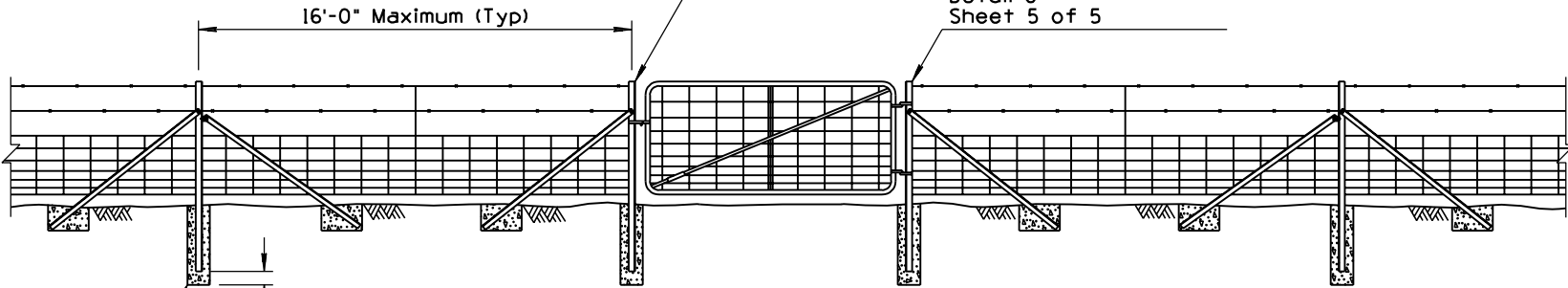
Intermediate Post Assembly  
Detail B  
Sheet 5 of 5



1'-0"x1'-0"x1'-6"  
Concrete Footing (Typ)

Latch/End Post Assembly  
Detail C  
Sheet 5 of 5

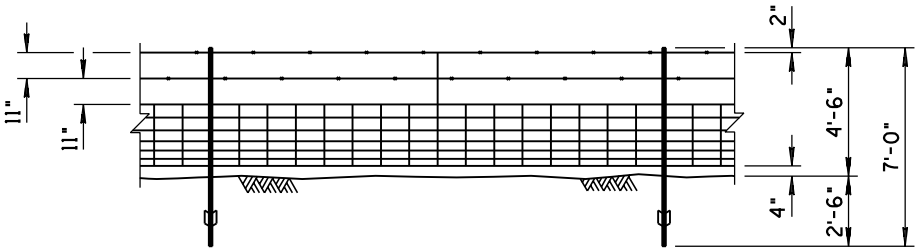
Gate/End Post Assembly  
Detail C  
Sheet 5 of 5



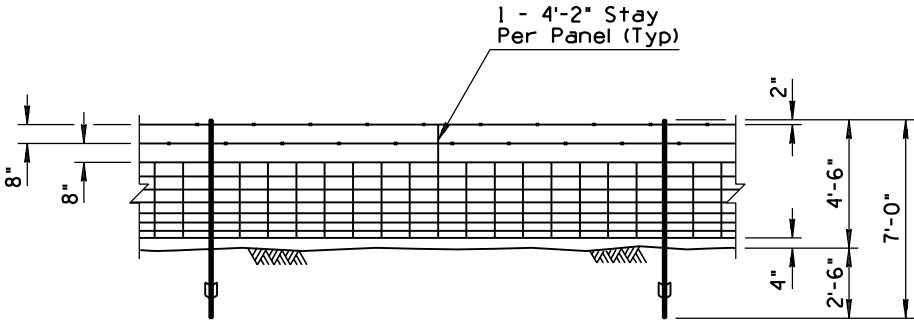
10" Diameter x 3'-0"  
Concrete Footing (Typ)

6" Typ

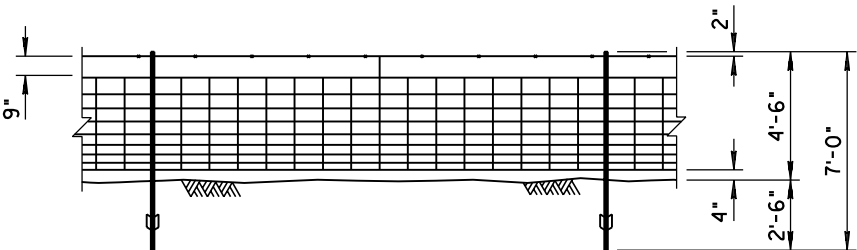
TYPICAL WOVEN WIRE FENCE INSTALLATION-TYPE 1 WW SHOWN



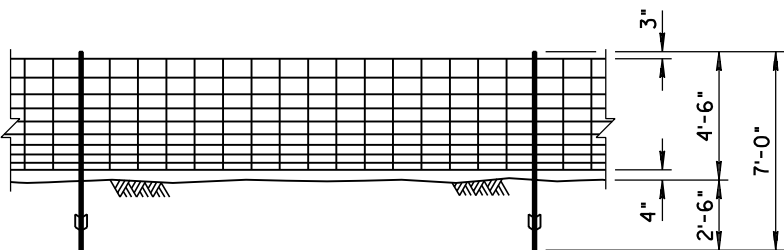
TYPE 1 WOVEN WIRE (WW)



TYPE 2 WOVEN WIRE (WW)



TYPE 3 WOVEN WIRE (WW)

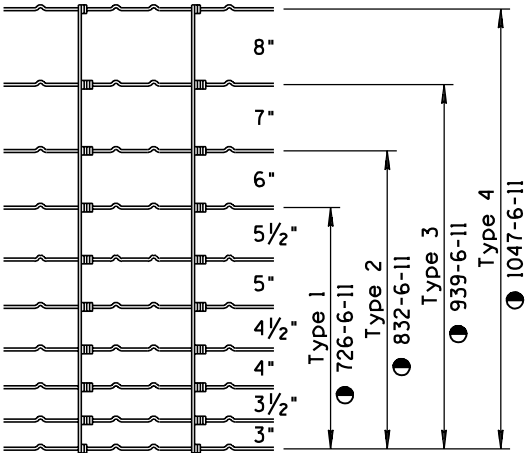


TYPE 4 WOVEN WIRE (WW)

### GENERAL NOTES

- Length of post and braces shall not be less than 7'-0".
- Woven wire fence fabric shall be attached to the post at the top, bottom, and intermediate wires.
- Intermediate Post Assemblies shall be located as shown and at intervals to utilize standard rolls to minimize cutting and waste.
- A twisted wire stay shall be centered between posts.

① ● ASTM design number

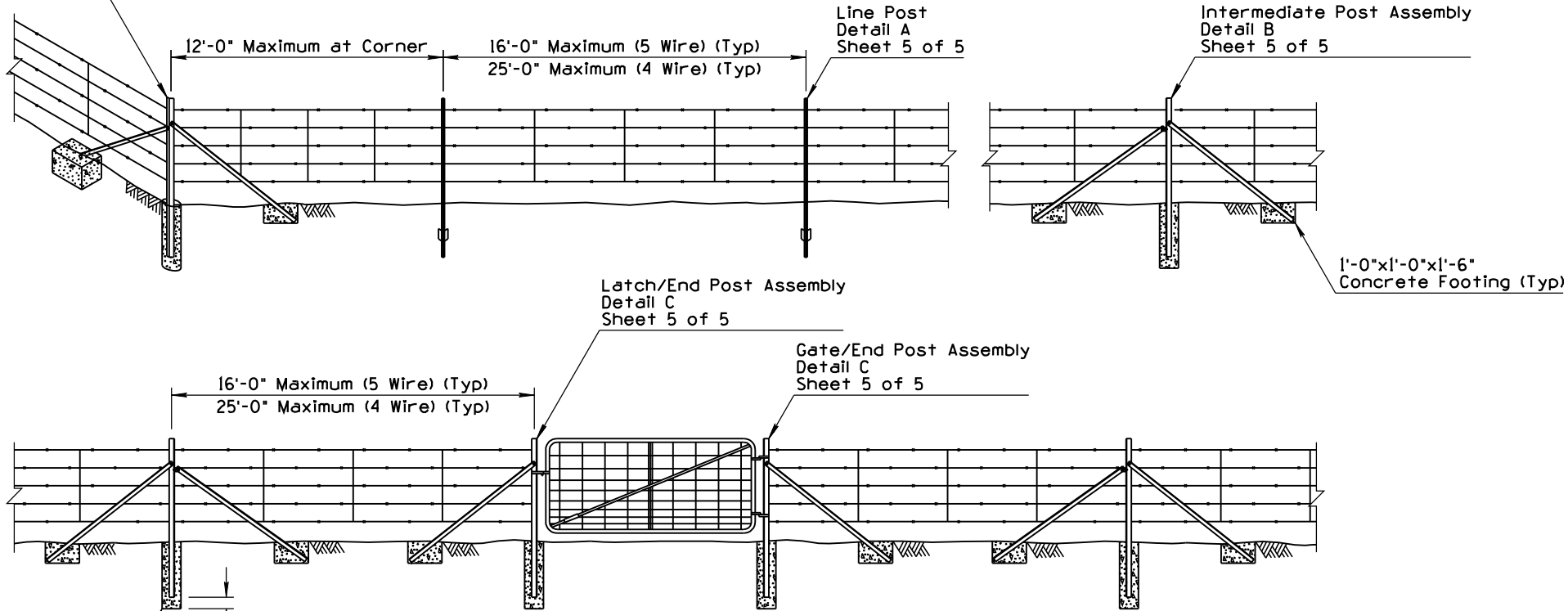


### FENCE FABRIC DIMENSIONS AND DESIGN NUMBERS

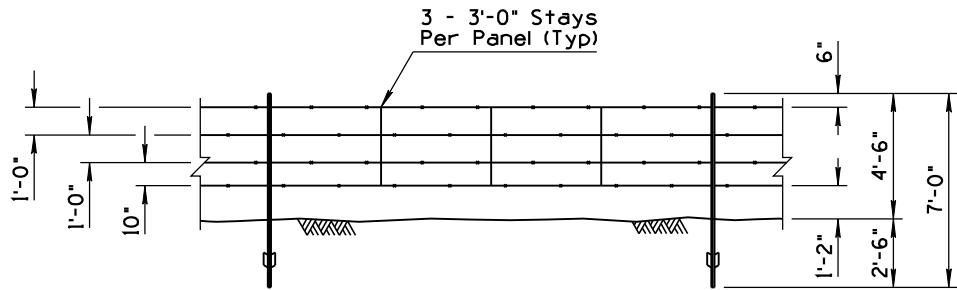
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE WOVEN WIRE	DRAWING NO. C-12.10 Sheet 1 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2	REVISED GENERAL NOTE 1	RLF	7/05
3			
4			

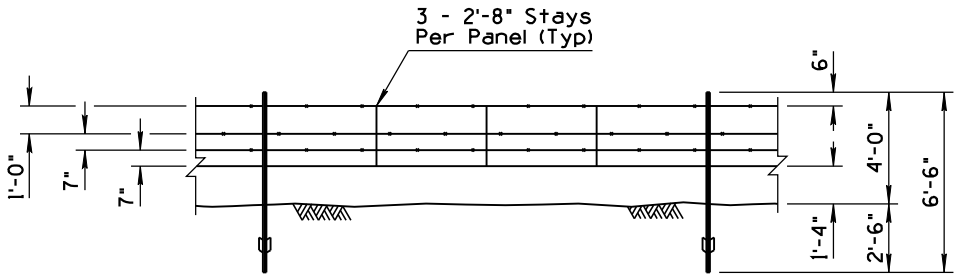
Corner Post Assembly  
Detail D  
Sheet 5 of 5



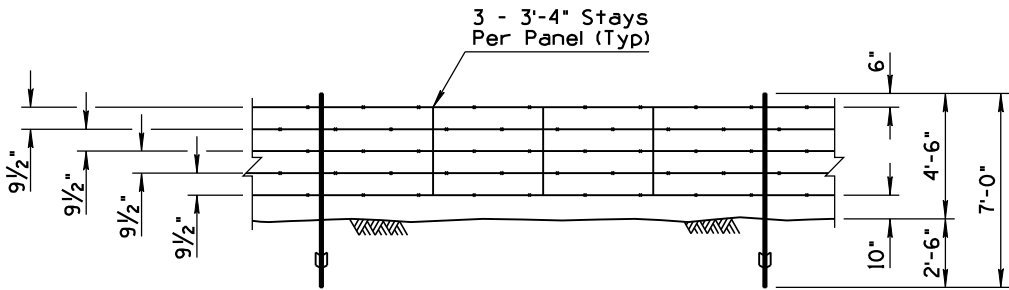
TYPICAL BARBED WIRE FENCE INSTALLATION-TYPE 2 BW SHOWN



TYPE 1 BARBED WIRE (BW) (4 WIRE)



BARBED WIRE GAME FENCE (GF)



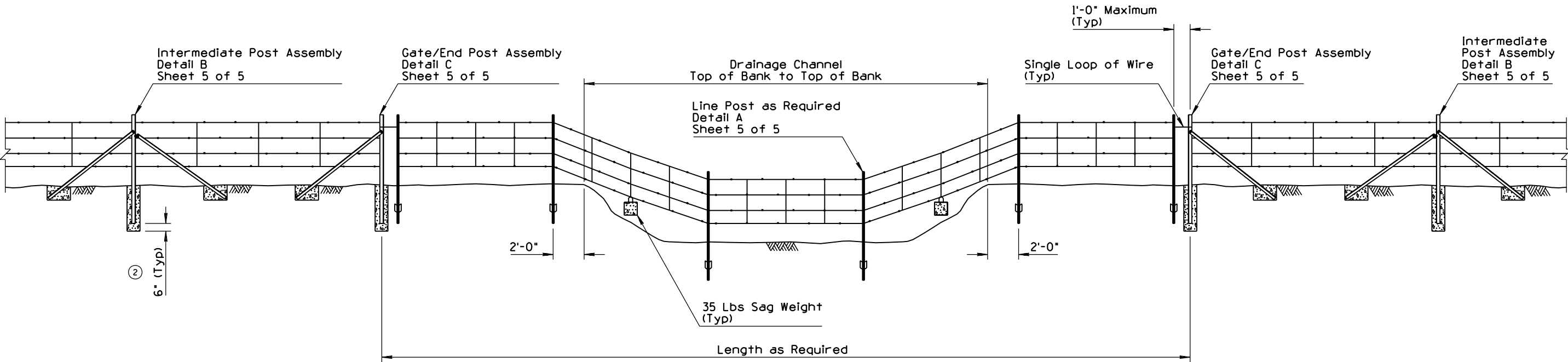
TYPE 2 BARBED WIRE (BW) (5 WIRE)

GENERAL NOTES

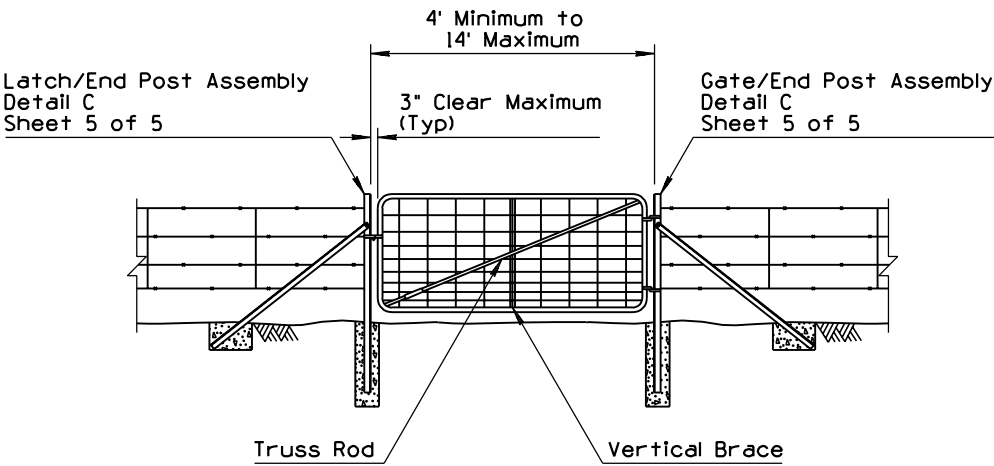
- ② 1. Intermediate Post Assemblies shall be located as shown and at intervals not to exceed 650', or midway between all braced posts.
2. For game fence the bottom wire shall be barbless.
3. The stays on game fence shall have their ends turned up to prevent injuries to game.

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/05
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	① FENCE BARBED WIRE	DRAWING NO. C-12.10 Sheet 2 of 5

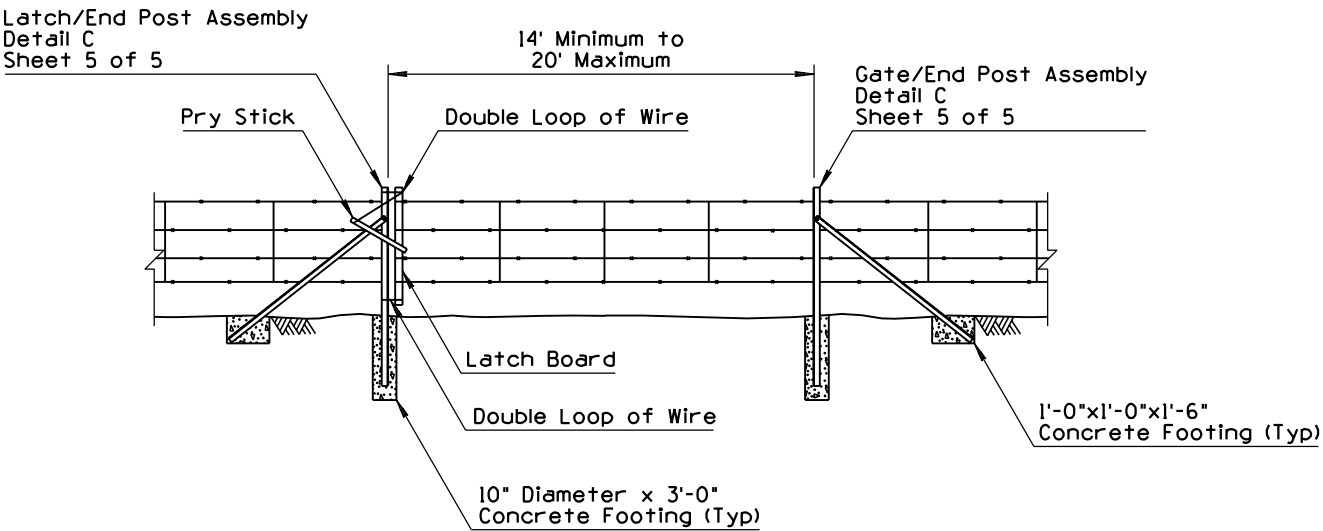
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2	ADDED DIMENSION	RLF	9/04
3			
4			



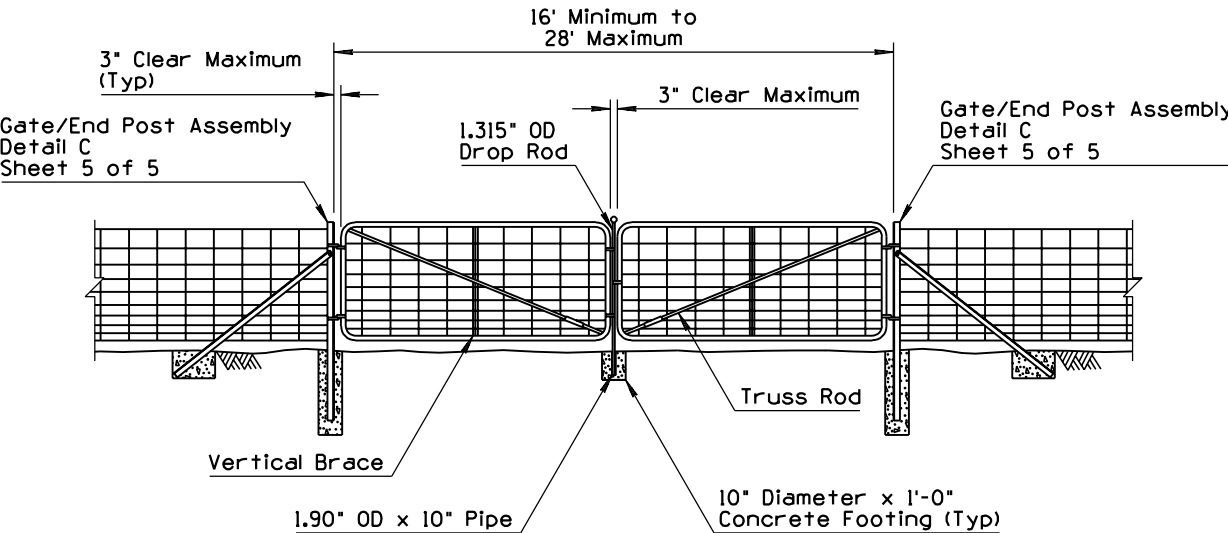
FLOOD GATE



TYPE 1 SINGLE GATE



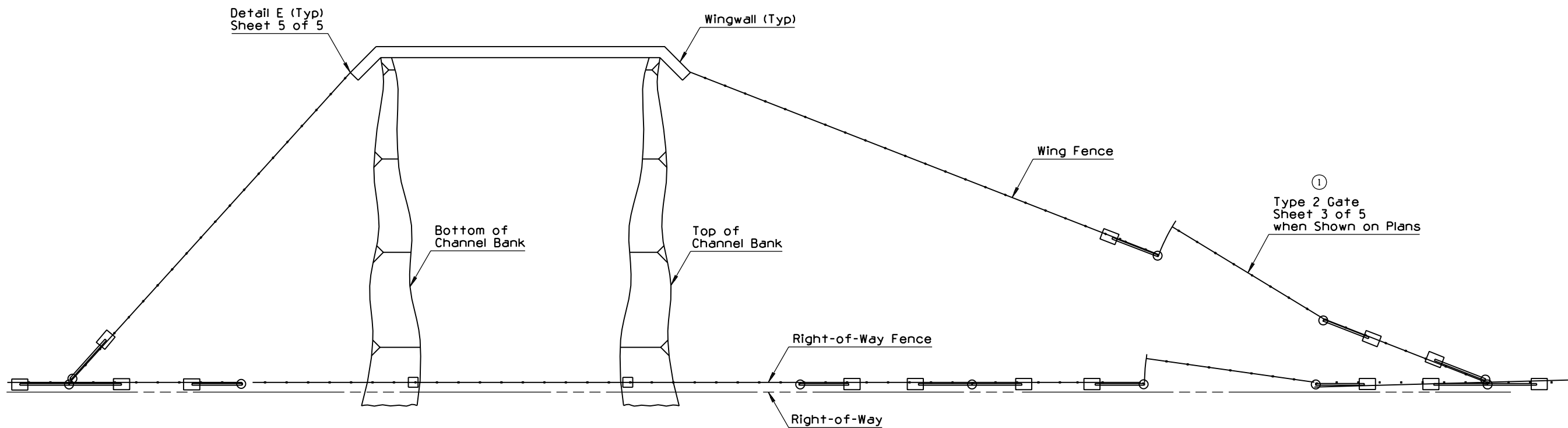
TYPE 2 GATE



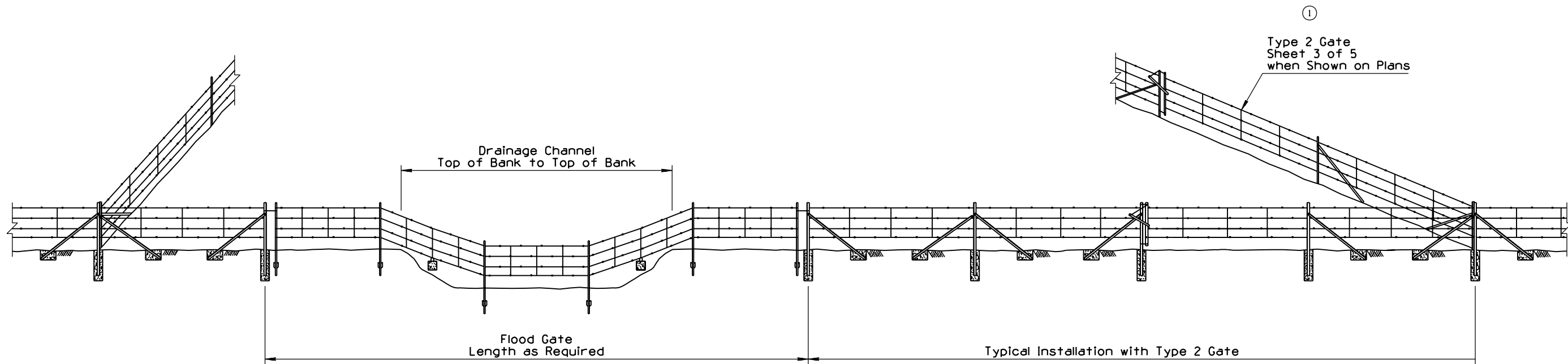
TYPE 1 DOUBLE GATE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	① FENCE TYPE 1 AND 2 GATES FLOOD GATE	DRAWING NO. C-12.10 Sheet 3 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED TYPE 2 GATE	RLF	9/04
2			
3			
4			



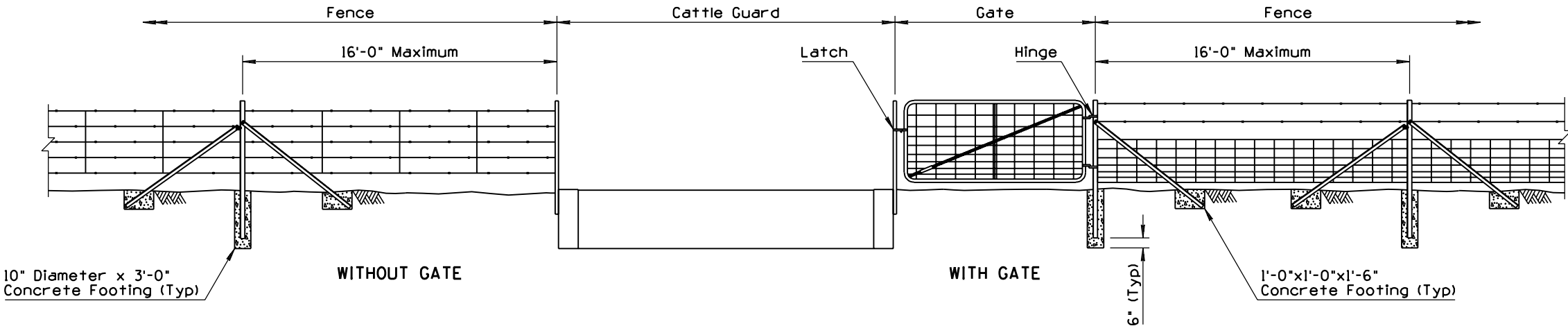
PLAN



ELEVATION  
TYPICAL FLOOD GATE INSTALLATION

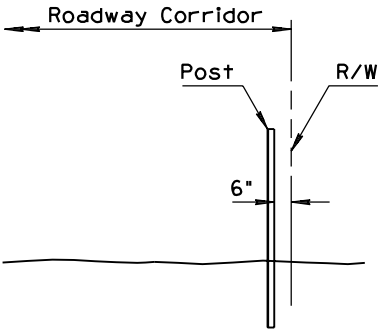
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	FENCE FLOOD GATE INSTALLATION	DRAWING NO. C-12.10 Sheet 4 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUE STD	PNB	7/94
2			
3			
4			

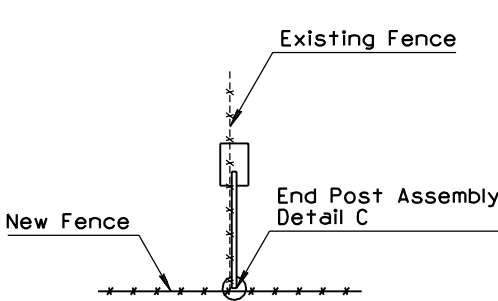


TYPICAL FENCE LOCATION AT CATTLE GUARD

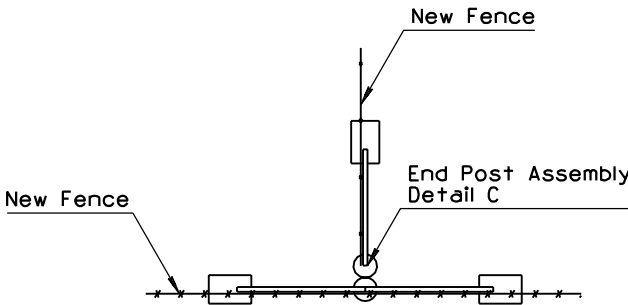
- GENERAL NOTES
- Post assemblies shall consist of an upright angle 2½"x2½"x¼" at 4.10 lbs/ft, and brace angles 2"x2"x¼" at 3.19 lbs/ft.



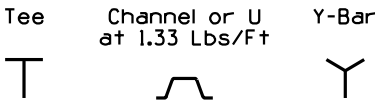
TYPICAL FENCE LOCATION



ABUTTING FENCE

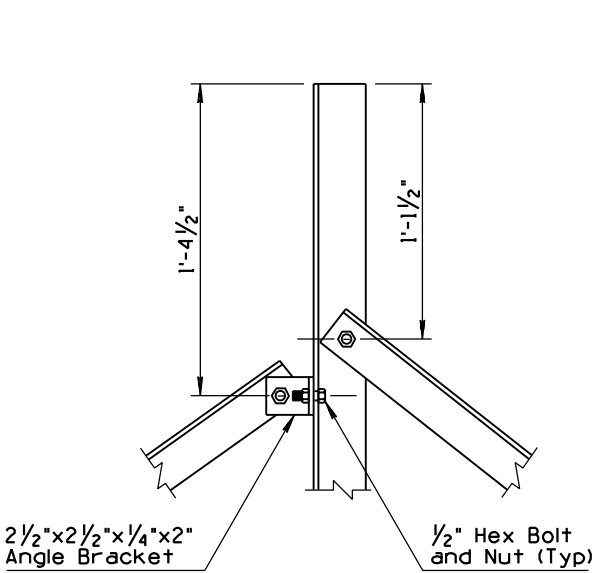


ABUTTING FENCE AT POST

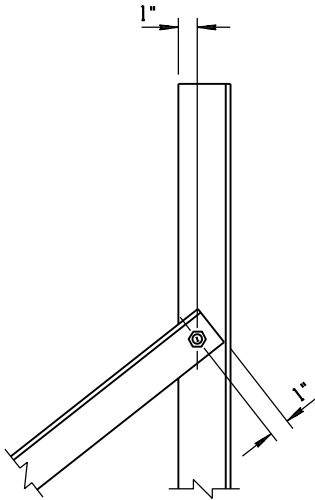


DETAIL A

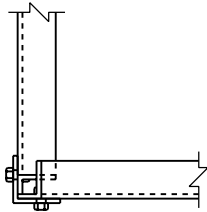
TYPICAL CROSS SECTIONS OF LINE POST SHAPES



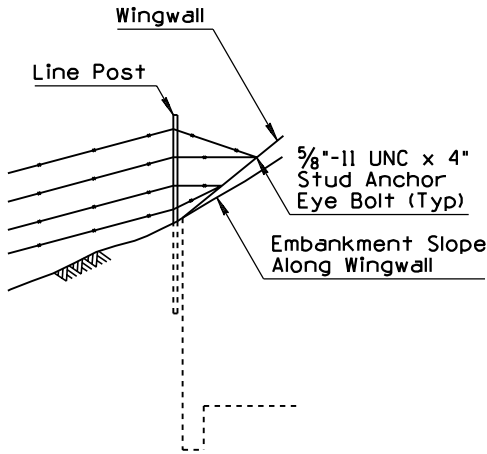
DETAIL B  
INTERMEDIATE POST ASSEMBLY



DETAIL C  
END POST ASSEMBLY



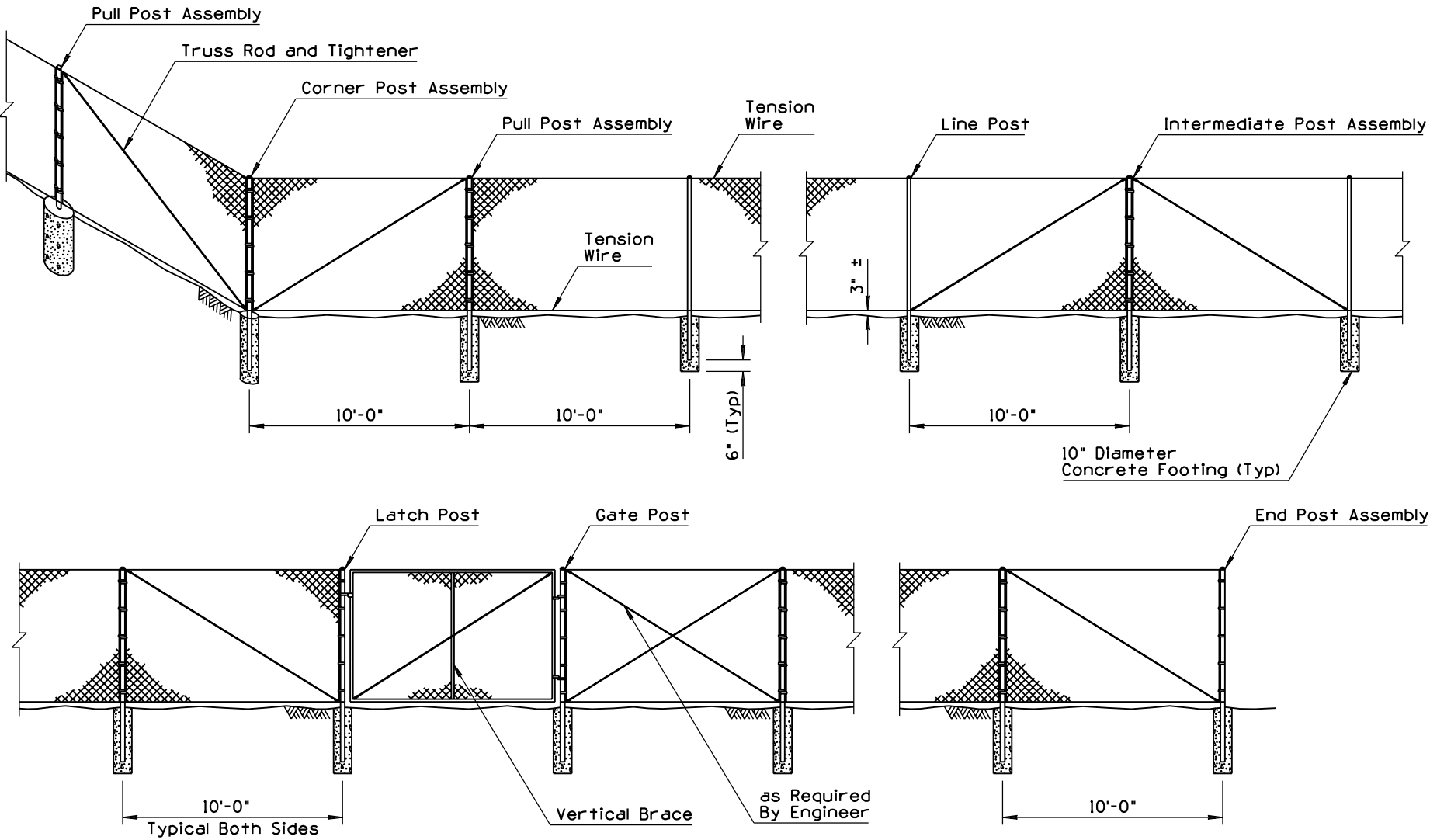
DETAIL D  
CORNER POST ASSEMBLY



DETAIL E  
FENCE CONNECTION TO WINGWALL

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/94
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① FENCE MISCELLANEOUS DETAILS	DRAWING NO. C-12.10 Sheet 5 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE 1 SHOWN

①

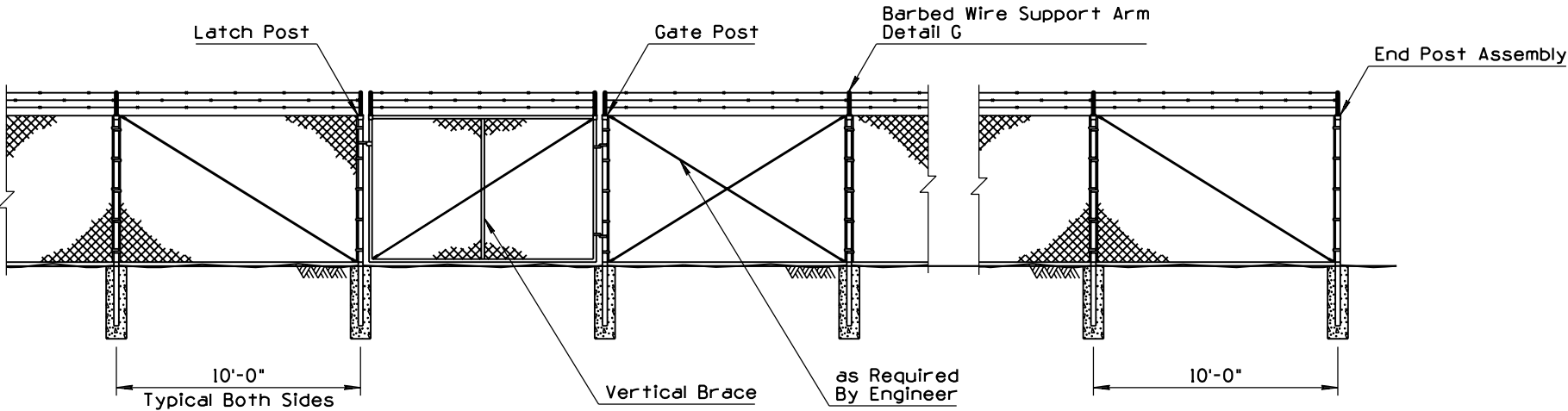
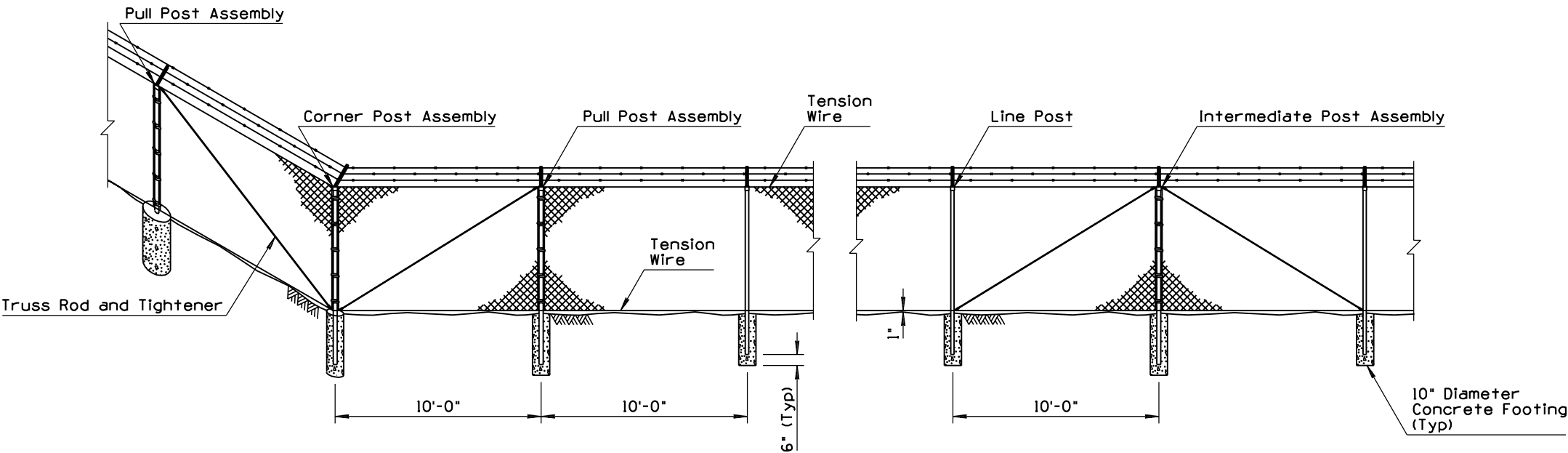
TYPICAL POST DIMENSIONS								
Fabric Height (In)	Corner, End, Intermediate, Gate, Latch and Pull Posts				Line Posts			
	Length (Ft-In)	Round	Roll Formed (In)		Length (Ft-In)	Round	Roll Formed	
		(OD) (In)	⌒	□		(OD) (In)	H-Section (In)	□ (In)
36	6-0	2.375	3.50 x 3.50	2.25 x 1.70	5-6	1.900	1.875 x 1.625	1.875 x 1.625
48	7-0	2.375	3.50 x 3.50	2.25 x 1.70	6-6	1.900	1.875 x 1.625	1.875 x 1.625
60	8-0	2.375	3.50 x 3.50	2.25 x 1.70	7-6	1.900	1.875 x 1.625	1.875 x 1.625
72	9-0	2.375	3.50 x 3.50	2.25 x 1.70	8-6	1.900	1.875 x 1.625	1.875 x 1.625
Over 72	Height +3-0	2.875	3.50 x 3.50	2.50 x 2.50	Height +2-6	2.375	2.250 x 2.000	1.875 x 1.625

GENERAL NOTES

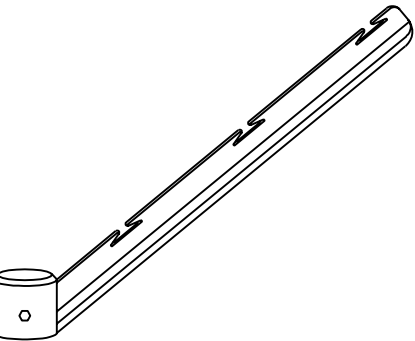
1. Posts shall be round, H-section, or roll-formed and shall conform to the nominal dimensional requirements shown on the plans. Dimensional tolerances for all shapes shall be according to ASTM A500. In addition, the material of which posts are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.111" for line posts and 0.130" for terminal posts.
2. Chain link fabric shall be either zinc-coated or aluminum-coated steel wire fence fabric. Zinc-coated steel fabric shall conform to the requirements of ASTM A392, Class 1 coating. Aluminum-coated steel fabric shall conform to the requirements of ASTM A491, with a minimum weight of coating of 0.40 ounce per square foot of wire surface area. Fabric shall be 11 gauge for all fence fabric 60" or less in height and shall be 9 gauge for fabrics greater than 60" in height.
3. Tension wires shall be 7 gauge (0.177" diameter) coil spring steel wire with a minimum tensile strength of 75,000 PSI and shall be zinc-coated or aluminum-coated.
4. Truss rods shall be 3/8" diameter adjustable rods. Truss tighteners shall have a strap thickness of not less than 1/4" .
5. Stretcher bars shall be 3/16" by 3/4" steel flat bars. Stretcher bar bands shall be 1/8" by 1" preformed steel bands.
6. Bottom tension wire shall be 3" from top of crown on concrete footings.
7. Intermediate post assemblies shall be spaced at 500' intervals or midway between pull posts when the distance between such posts is less than 1,000' and more than 500'.
8. See Sheet 3 of 3 for typical fence location.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK TYPE 1	DRAWING NO. C-12.20 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE 2 SHOWN

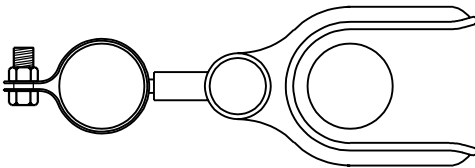
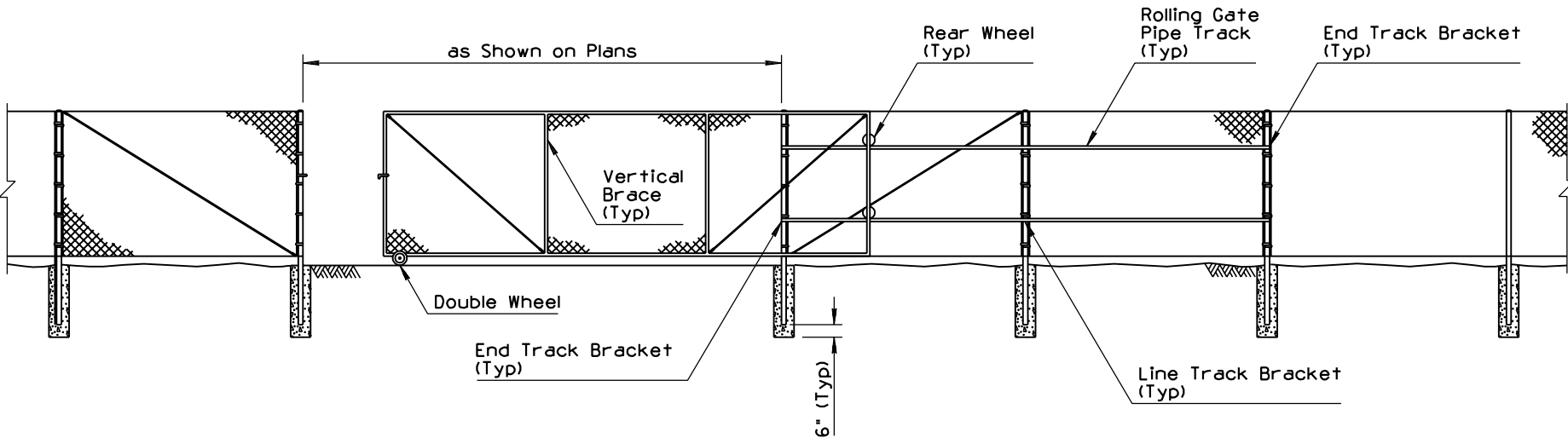


DETAIL G  
BARBED WIRE SUPPORT ARM

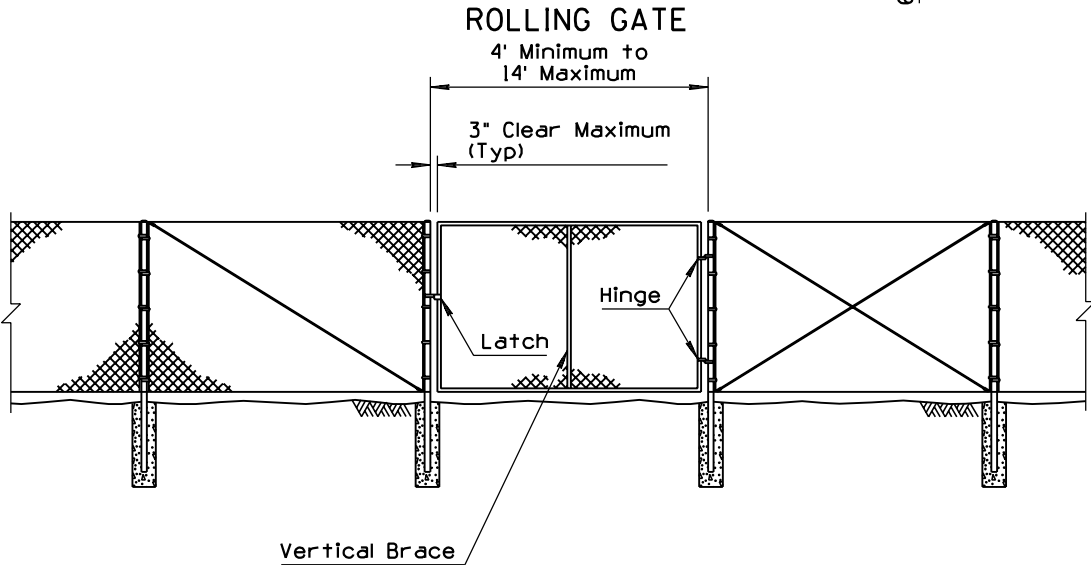
TYPICAL POST DIMENSIONS								
Fabric Height (In)	Corner, End, Intermediate, Gate, Latch and Pull Posts				Line Posts			
	Length (Ft-In)	Round	Roll Formed		Length (Ft-In)	Round	H-Section (In)	Roll Formed
		(OD) (In)	□ (In)	□ (In)		(OD) (In)		□ (In)
72	8-6	2.375	3.50 x 3.50	2.50 x 2.50	8-0	1.900	1.875 x 1.625	1.875 x 1.625

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK TYPE 2	DRAWING NO. C-12.20 Sheet 2 of 3

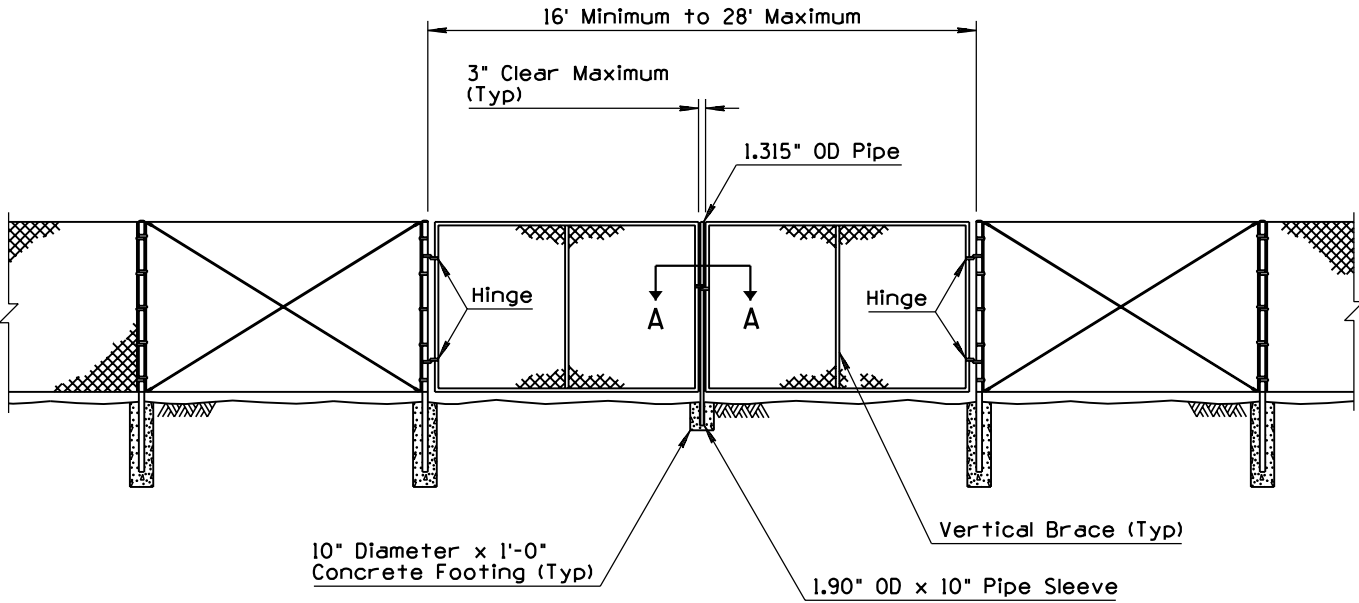
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



SECTION A-A  
DOUBLE GATE LATCH ASSEMBLY



SINGLE GATE

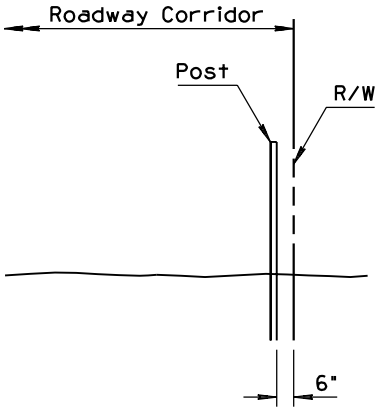


DOUBLE GATE

①

TYPICAL GATE DIMENSIONS									
SINGLE AND DOUBLE SWING GATES						ROLLING GATES			
Gate Width (Ft)	Vertical Braces	Gate Post Size	Gate Width (Ft)	Vertical Braces	Gate Post Size	Gate Width (Ft)	Number of Equally Spaced Vertical Braces	Tension Rods Per Braced Panel	Gate Post Size
6' Ht or Less		OD (In)	Over 6' Ht		OD (In)				OD (In)
3 to 8	0	2.875	3 to 8	0	2.875	6 to 13	1	0	2.875
8 to 16	1	4.000	8 to 16	1	4.000	13 to 16	1	1	2.875
16 to 18	2	4.000				16 to 21	2	1	2.875
						21 to 27	2	1	2.875
						28 and Larger	3	1	2.875

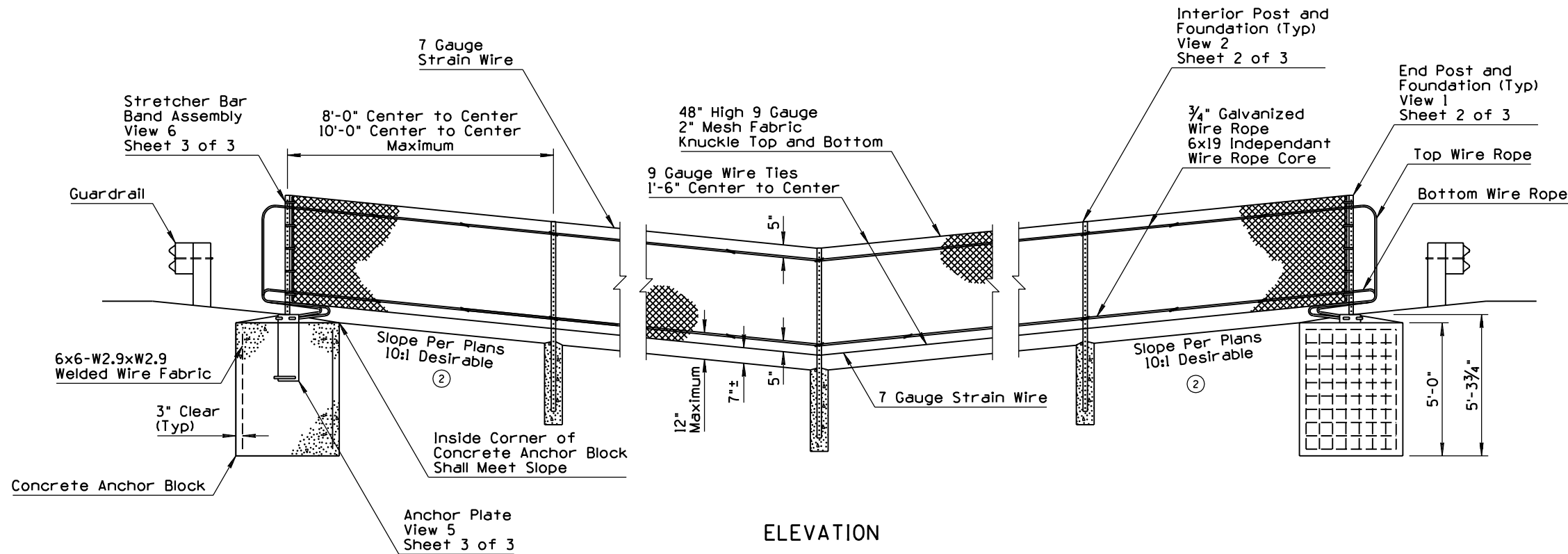
GATES FOR CHAIN LINK FENCE - TYPE 1 SHOWN  
(Type 2, With Barbed Wire Typical)



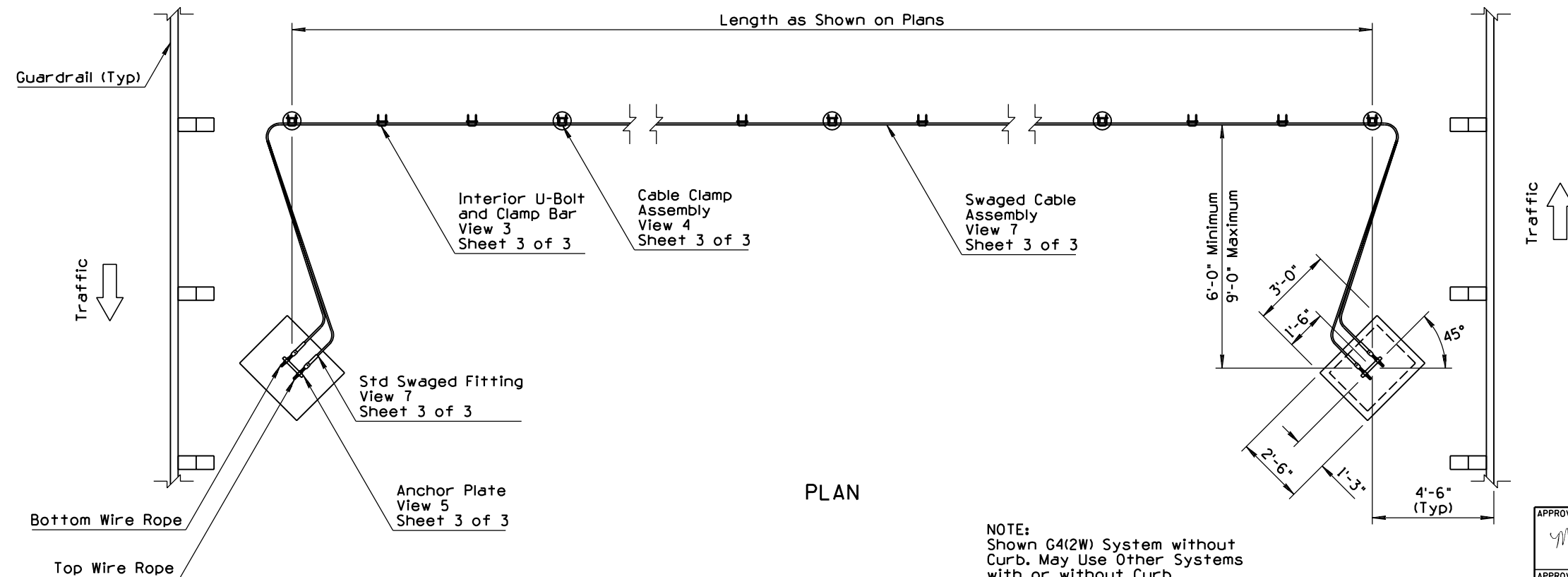
TYPICAL FENCE LOCATION

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK GATES	DRAWING NO. C-12.20 Sheet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TITLE	RLF	9/04
2	REVISED SLOPE CRITERIA	RLF	9/04
3			
4			



ELEVATION



PLAN

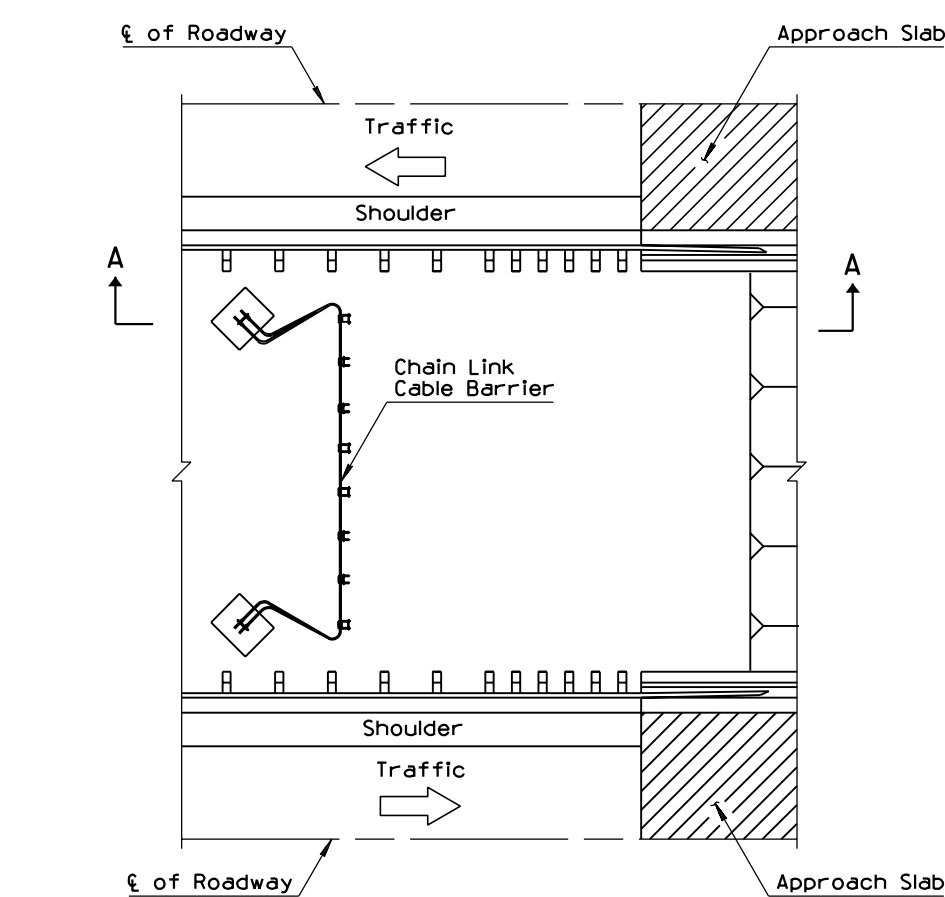
NOTE:  
Shown G4(2W) System without  
Curb. May Use Other Systems  
with or without Curb.

## GENERAL NOTES

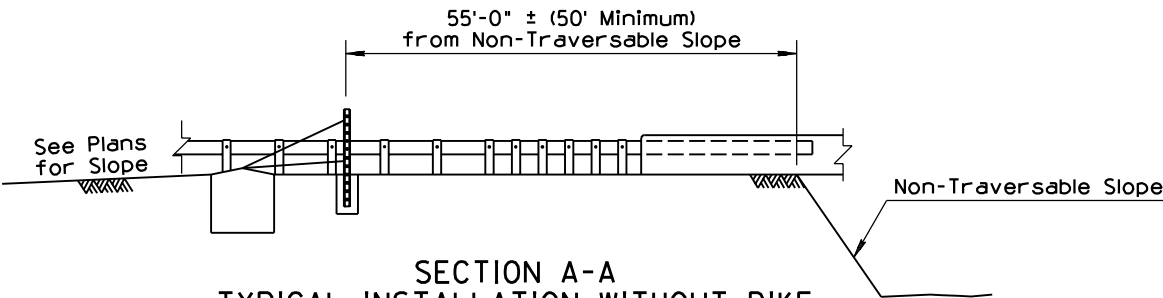
1. All concrete shall be Class S, f'c=4000 PSI.
2. All bolts, nuts, washers and fittings shall meet the dimensional requirements of the American National Standards Institute, unless otherwise designated and shall be galvanized in accordance with ASTM A153.
3. Galvanized swaged fitting and U-Bolt shall conform to ASTM A449.
4. The 3/4" galvanized wire rope shall conform to AASHTO M30 Class B, Type 2.
5. The wire fabric, ties, bands, stretcher bars, and other fittings and hardware shall conform to AASHTO M181.
6. The wire fabric fence shall follow contour of the graded median.
7. The excavation for the concrete anchor blocks shall be to neat lines. Maximum excess shall be 3".
8. Perforated posts shall be square tube formed from 0.105" USS gauge ASTM A366/A366M cold rolled carbon steel. The square tubes shall be welded directly in the corner by high frequency resistance welding or equal. The posts to be externally scarfed to agree with standard corner radii of 5/32" ± 1/16".
9. Perforated posts shall be galvanized to the requirements of ASTM A653/A653M. Coating designator shall be Z275.
10. The cables shall have enough tension to prevent sagging. The location of the concrete anchor blocks may also be varied to provide enough tension to help prevent sagging.
11. Two interior U-bolt and clamp bars shall be spaced at 1/3 of the distance between posts.
12. See Standard Drawing C-12.20 for 48" fabric details.
13. An alternate to rectangular concrete anchor block shall be a 36" diameter round footing with an additional depth of 4".
14. The median approach grade within 100'± of the Chain Link Cable Barrier should not exceed a grade break of 10 percent.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK CABLE BARRIER ①	DRAWING NO. C-12.30 Sheet 1 of 3

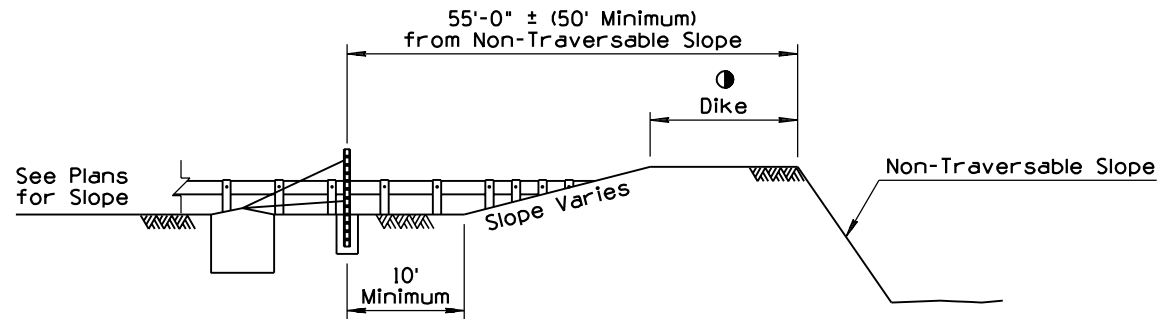
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED DESIGNATION	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



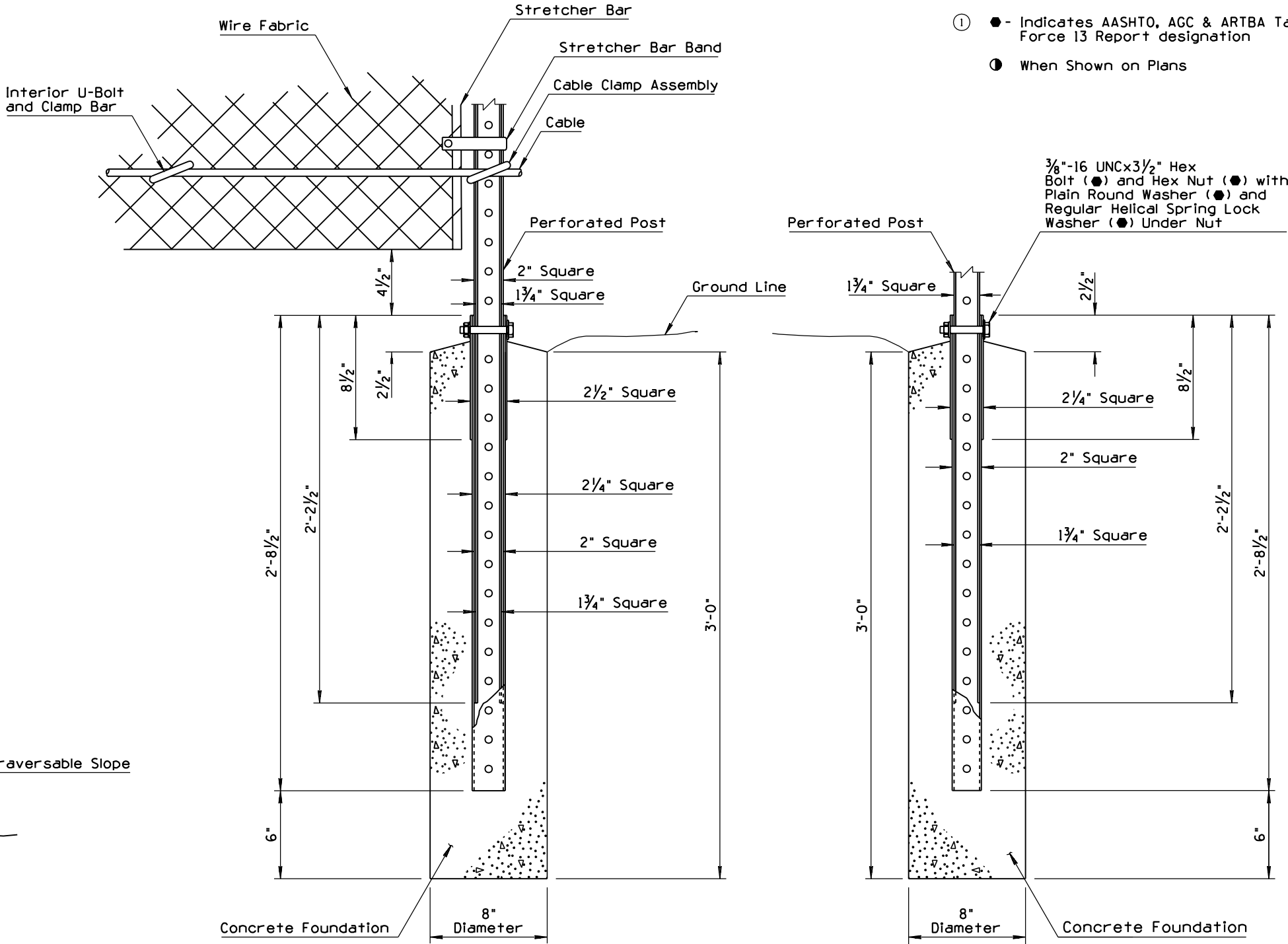
PLAN



SECTION A-A  
TYPICAL INSTALLATION WITHOUT DIKE



SECTION A-A  
TYPICAL INSTALLATION WITH DIKE



VIEW 1  
END POST AND FOUNDATION

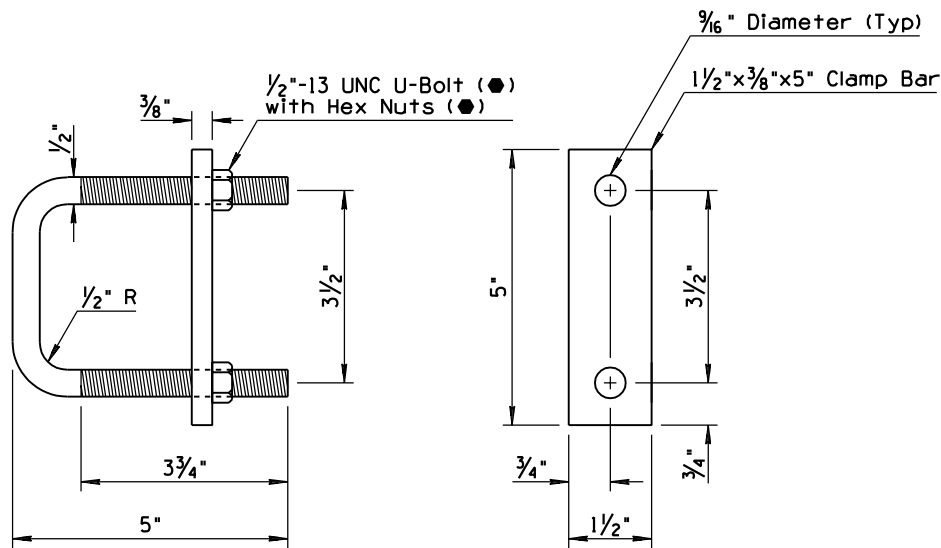
VIEW 2  
INTERIOR POST AND FOUNDATION

- ① ● - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation  
● - When Shown on Plans

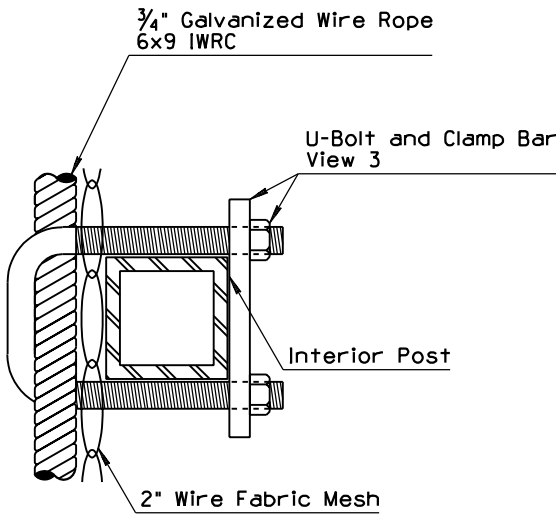
3/8"-16 UNCx3 1/2" Hex Bolt (●) and Hex Nut (●) with Plain Round Washer (●) and Regular Helical Spring Lock Washer (●) Under Nut

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK CABLE BARRIER	DRAWING NO. C-12.30 Sheet 2 of 3

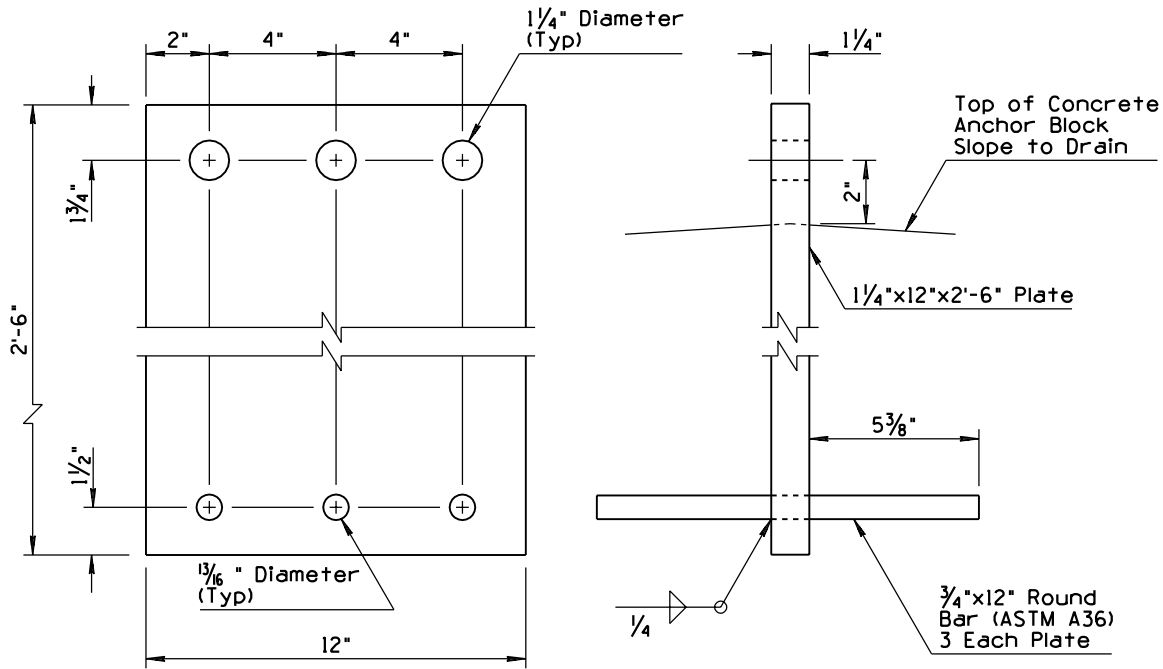
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED DESIGNATION	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			



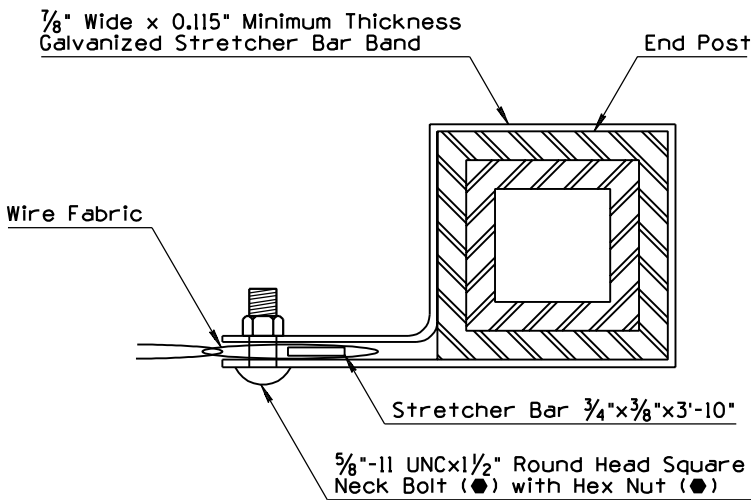
VIEW 3  
U-BOLT AND CLAMP BAR



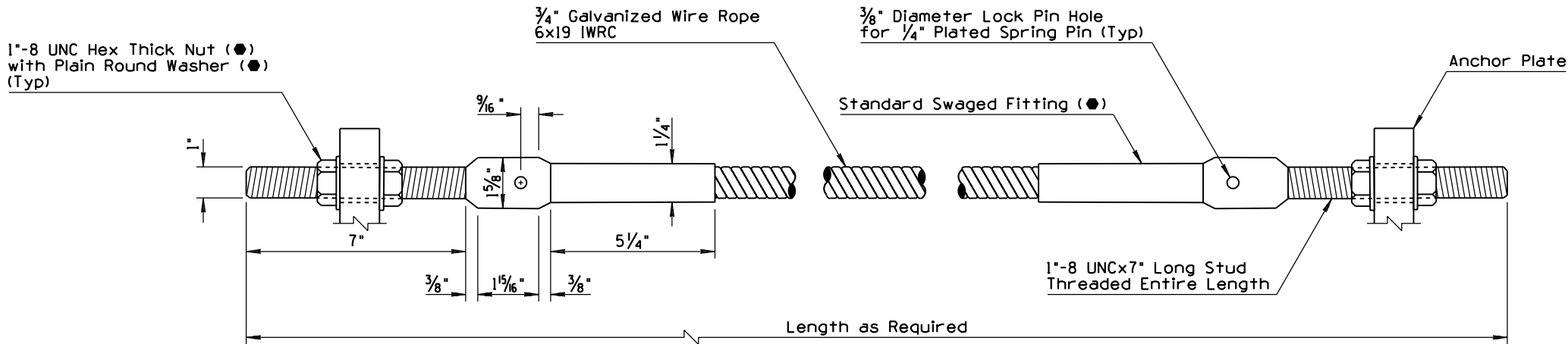
VIEW 4  
CABLE CLAMP ASSEMBLY



VIEW 5  
ANCHOR PLATE



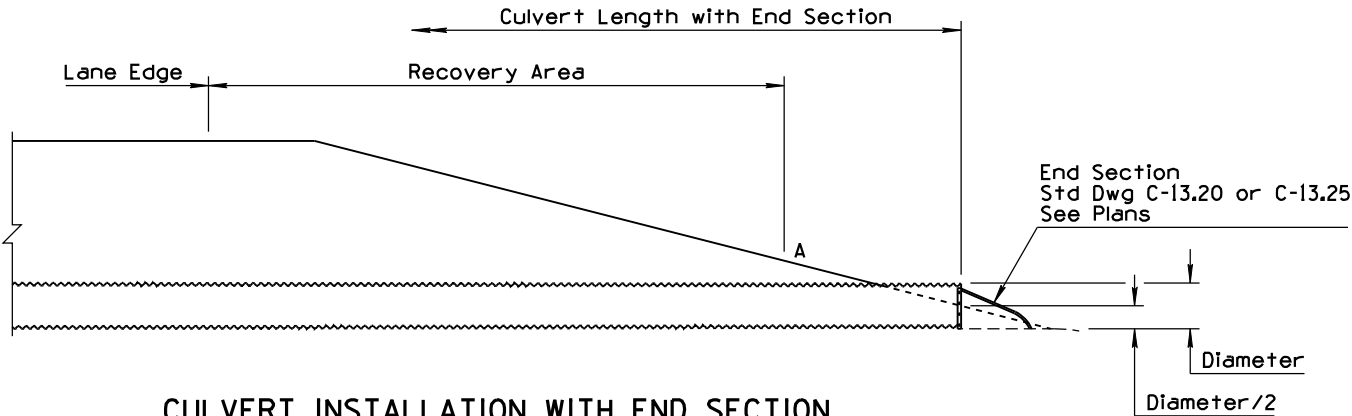
VIEW 6  
STRETCHER BAR BAND ASSEMBLY



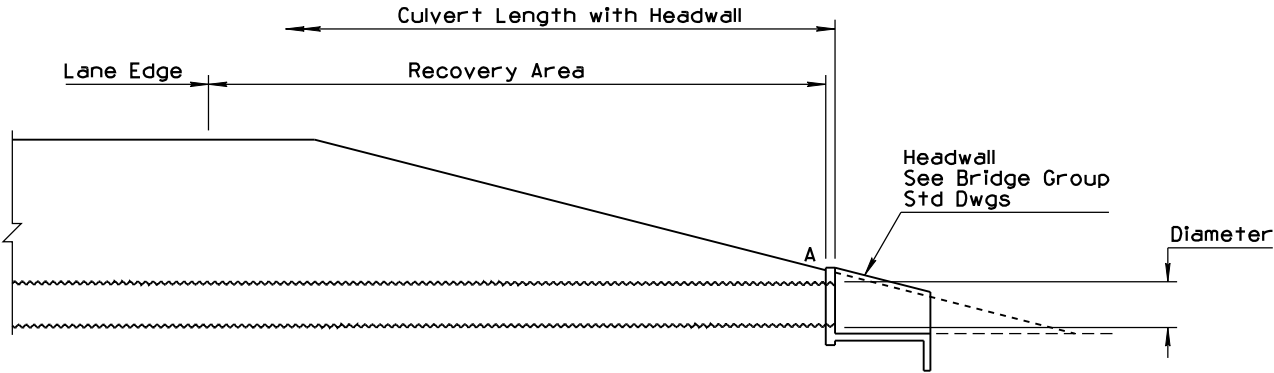
VIEW 7  
SWAGED CABLE ASSEMBLY

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FENCE CHAIN LINK CABLE BARRIER	DRAWING NO. C-12.30 Sheet 3 of 3

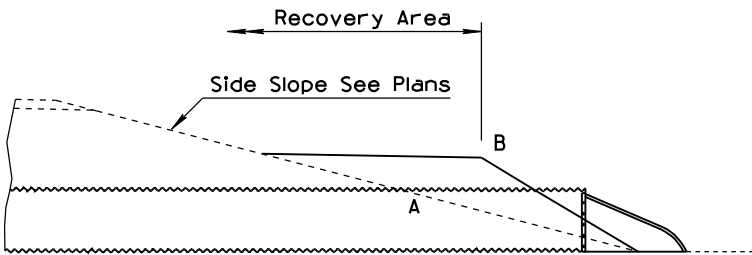
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	7/05
2			
3			
4			



CULVERT INSTALLATION WITH END SECTION



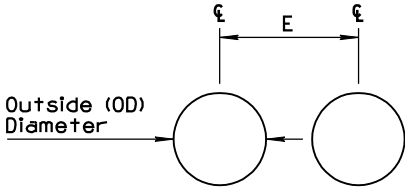
CULVERT INSTALLATION WITH HEADWALL



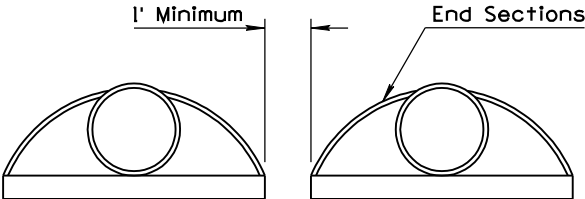
PIPE WITH BERM REQUIREMENT DETAIL

See General Note 4

MINIMUM SPACING FOR MULTIPLE PIPES WITH HEADWALL	
Diameter or Span (In)	E (Ft-In)
18	2-6
24	3-0
30	3-9
36	4-6
42	5-3
48 to 66	OD + 3-0
72 and Over	OD + 3-0



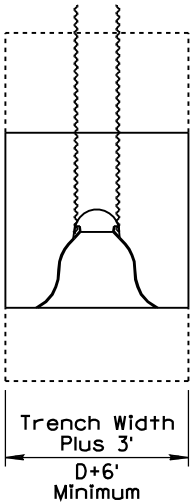
MINIMUM SPACING FOR MULTIPLE PIPES WITH HEADWALL



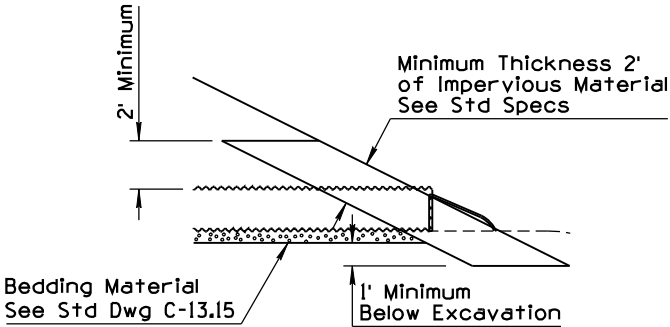
MINIMUM SPACING FOR MULTIPLE PIPES WITH END SECTIONS

### GENERAL NOTES

- See plans for any required inlet and/or outlet protection.
- E dimension applies to both non-trench and trench conditions.
- Minimum cover over pipe culverts shall be 1', measured from the top of pipe.
- See Pipe Berm Requirement Detail for pipe berm requirements and Std Dwg C-03.10 for installation. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the edge of the recovery area.
- Slope plating shall conform to Std Spec 501.



PLAN

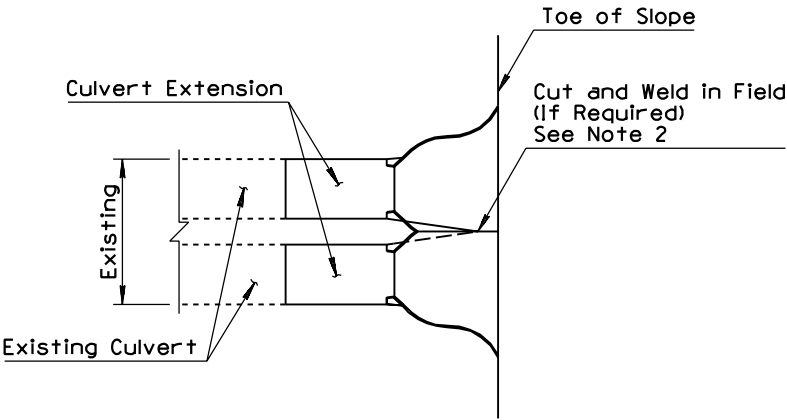


ELEVATION

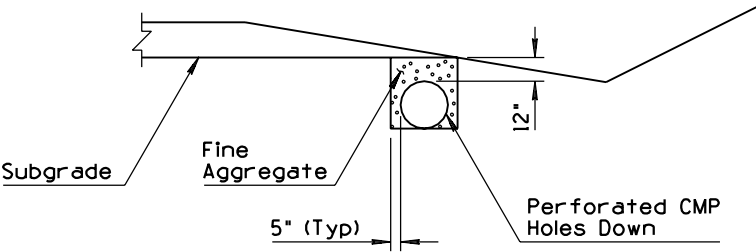
SLOPE PLATING FOR PIPE WITH END SECTIONS

APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. ① 7/05
APPROVED FOR DISTRIBUTION <i>John Smith</i>	PIPE CULVERT INSTALLATION	DRAWING NO. C-13.10 Sheet 1 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 2	RLF	9/04
2			
3			
4			

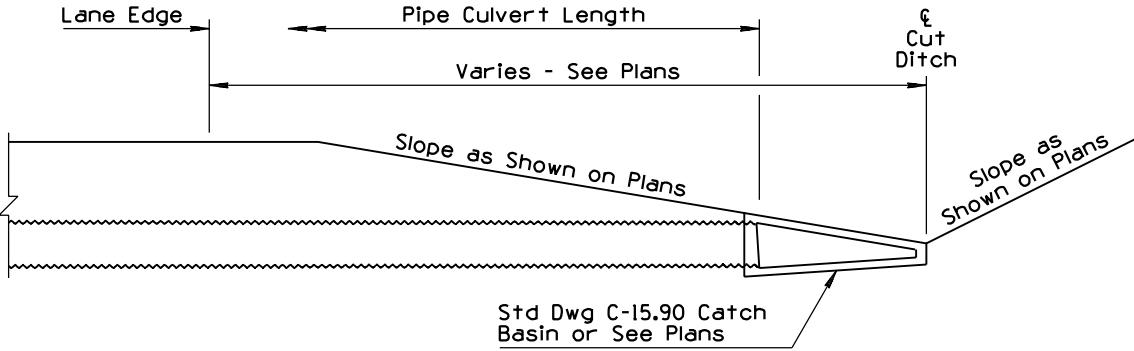


SPECIAL MULTIPLE PIPE END SECTION DETAIL  
FOR PIPE CULVERT EXTENSIONS ONLY

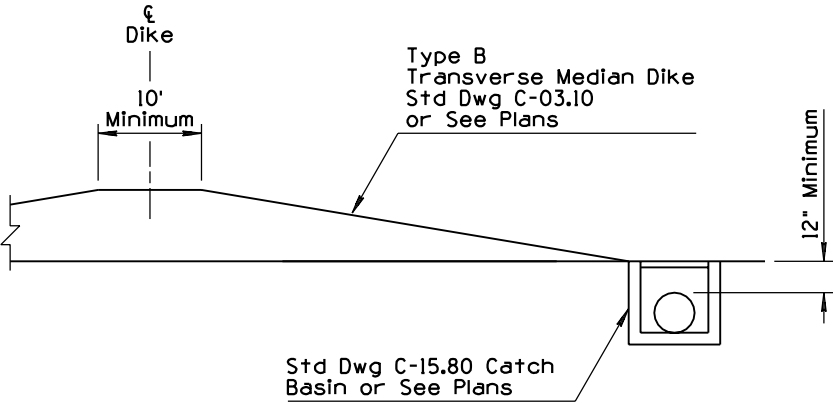


PERFORATED CMP INSTALLATION

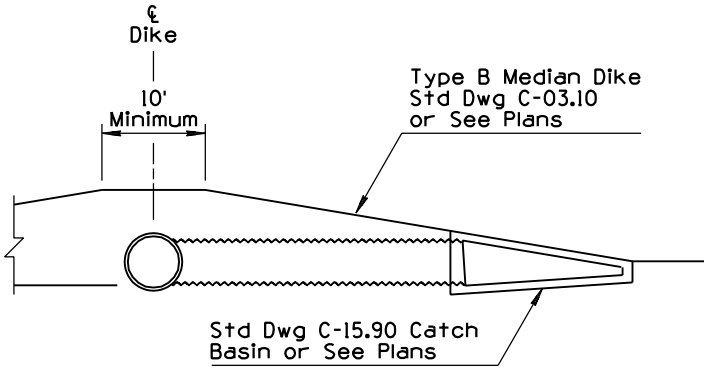
- GENERAL NOTES
1. Minimum cover over pipe culverts shall be 12", measured from the top of pipe.
  - ① 2. After welding, the damaged coating shall be cleaned by a wire brush and painted with at least one full coat of Paint Number 4, or given two coats of an approved hot asphalt paint, as directed by the Engineer.



PIPE AND CATCH BASIN INSTALLATION  
AT SAG CONDITION OF CUT DITCH



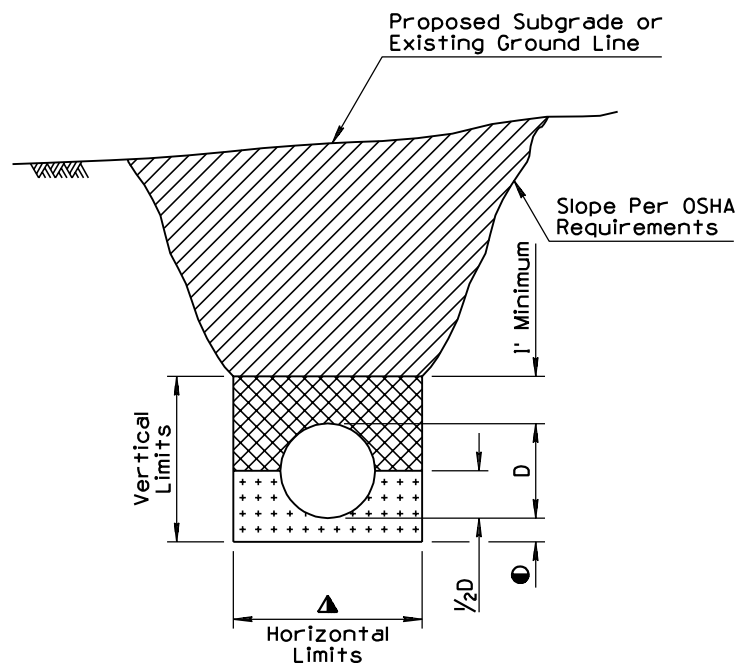
PIPE AND CATCH BASIN INSTALLATION  
AT BASE OF TRANSVERSE DIKE



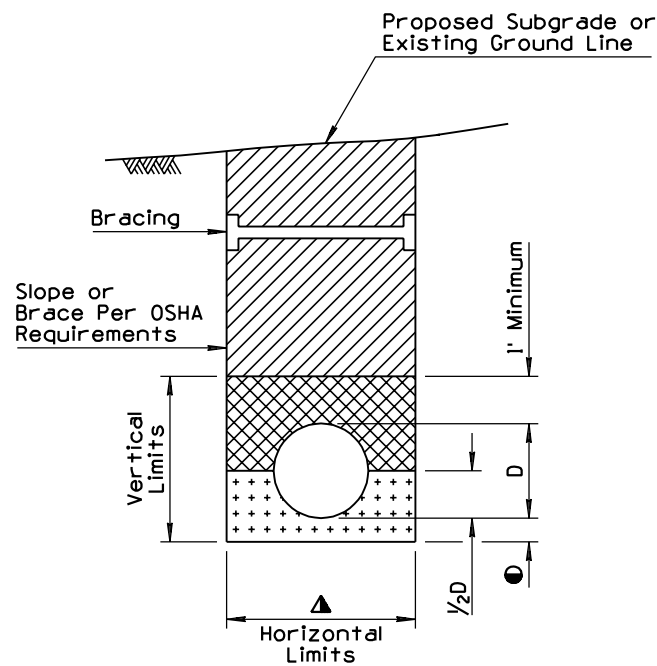
PIPE AND CATCH BASIN INSTALLATION  
AT FACE OF TRANSVERSE DIKE

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CULVERT INSTALLATION	DRAWING NO. C-13.10 Sheet 2 of 2

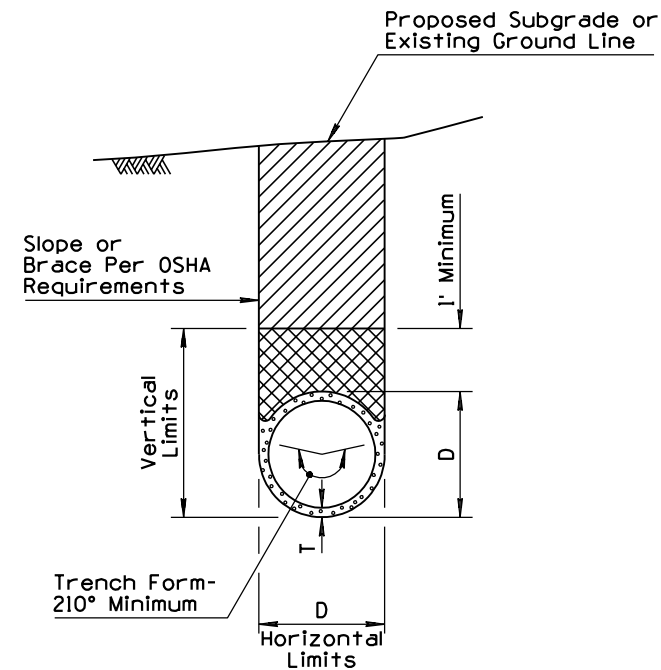
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED SPECIFICATIONS	RLF	9/04
2			
3			
4			



TRENCH CONDITION  
IN NATURAL GROUND OR IN EMBANKMENT  
WITHOUT BRACING



TRENCH CONDITION  
IN NATURAL GROUND OR IN EMBANKMENT  
WITH BRACING SHOWN



TRENCH CONDITION  
NRCIPCP IN NATURAL GROUND  
OR IN EMBANKMENT

## GENERAL NOTES

- Pipes shall be installed either in a trench condition or in a non-trench condition in natural ground or in embankment.
- In a trench condition, the vertical and horizontal limits shall be maintained. If horizontal limits are exceeded or the vertical limits are not maintained, a non-trench condition exists.
- Bracing and sloping shall conform to OSHA requirements.
- Pipe backfill may be bedding material.
- In a non-trench condition, the embankment for pipe stability shall be constructed in lifts to the limits shown in the detail simultaneously with the bedding material and pipe backfill. If the contractor chooses to construct it as a trench condition, the embankment shall be constructed before excavating the trench.

D - Outside diameter of full circle pipe or outside dimension (span or rise) of arch, arch pipe, elliptical pipe.

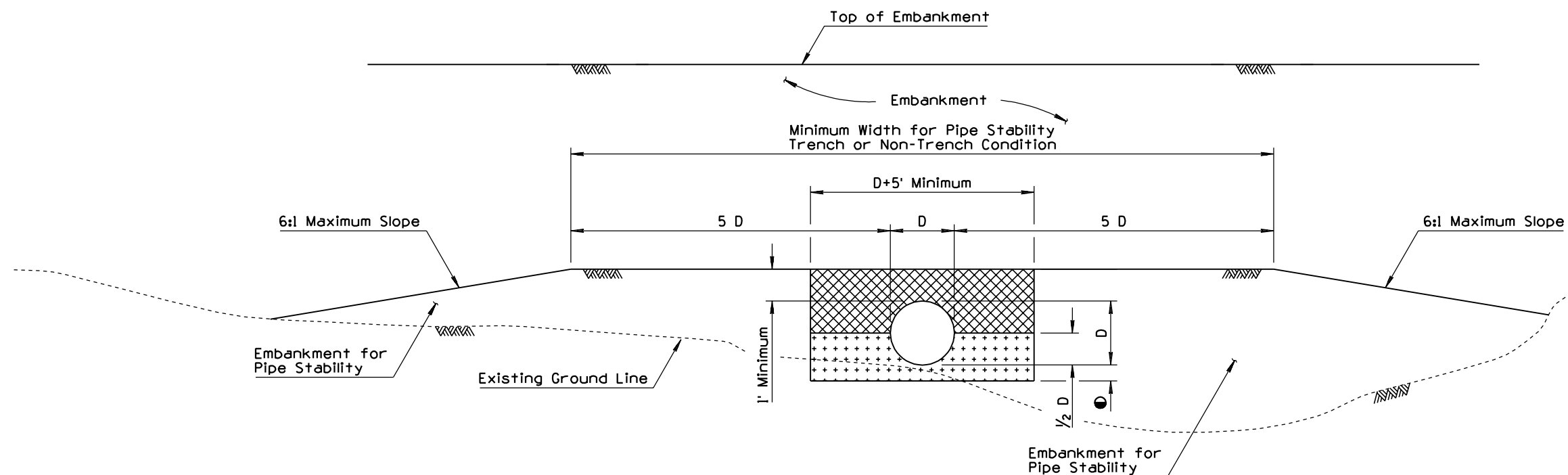
T - Minimum wall thickness for NRCIPCP: See Plans.

① ▲ For  $D < \text{than } 4'$ :  $D + 6"$  each side, minimum  
 $D + 2'$  each side, maximum

① For  $D \geq \text{than } 4'$ :  $D + 1'$  each side, minimum  
 $D + 3'$  each side, maximum

● - 6 inches except when on unyielding or unstable material. See Std Specs.

	TRENCH BACKFILL
	PIPE BACKFILL
	BEDDING



NON-TRENCH CONDITION

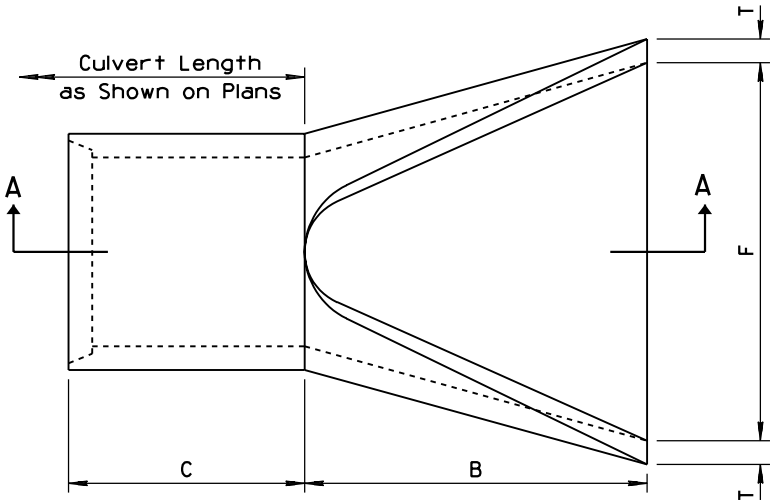
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	TYPICAL PIPE INSTALLATION	DRAWING NO. C-13.15

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	NEW GENERAL NOTE 1	RLF	9/04
2			
3			
4			

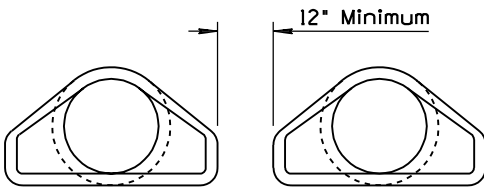
GENERAL NOTES

1. End section joint type shall match the pipe joint type.
2. Embankment slope shall be warped to match slope of end section.

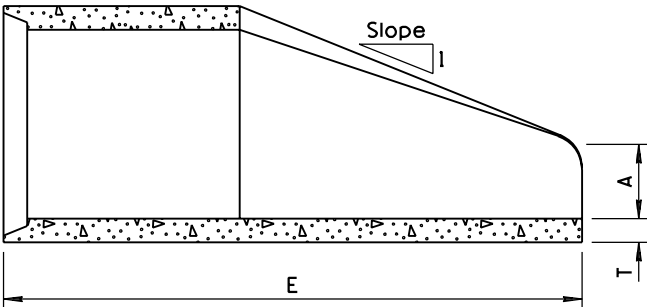
Pipe Diameter (In)	Approximate Weight (Lbs)	Dimensions (In)						Approximate Slope
		T	A	B	C	E	F	
24	1520	3	9½	43½	30	73½	48	3
27	1930	3¼	10½	49½	24	73½	54	3
30	2190	3½	12	54	19¾	73¾	60	3
36	4100	4	15	63	34¾	97¾	72	3
42	5380	4½	21	63	35	98	78	3



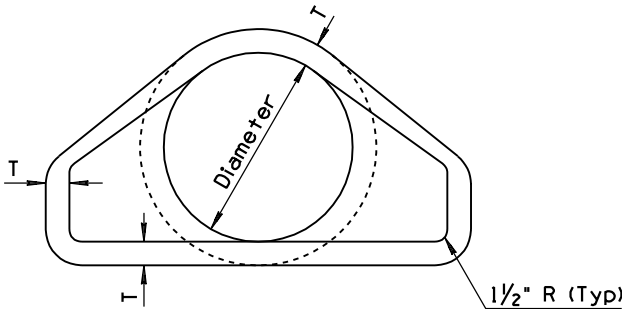
PLAN



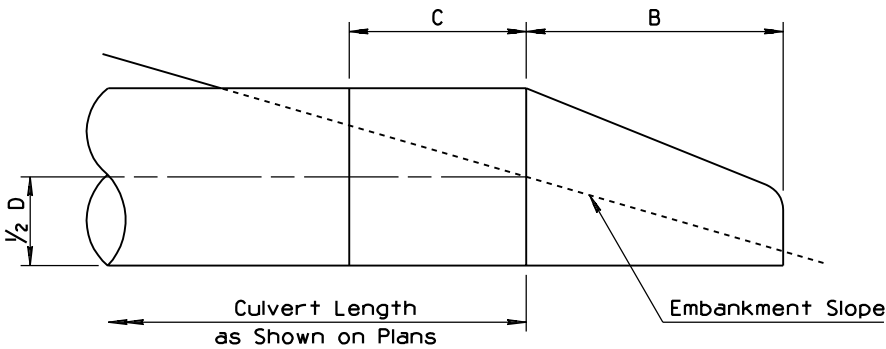
SPACING FOR MULTIPLE INSTALLATION



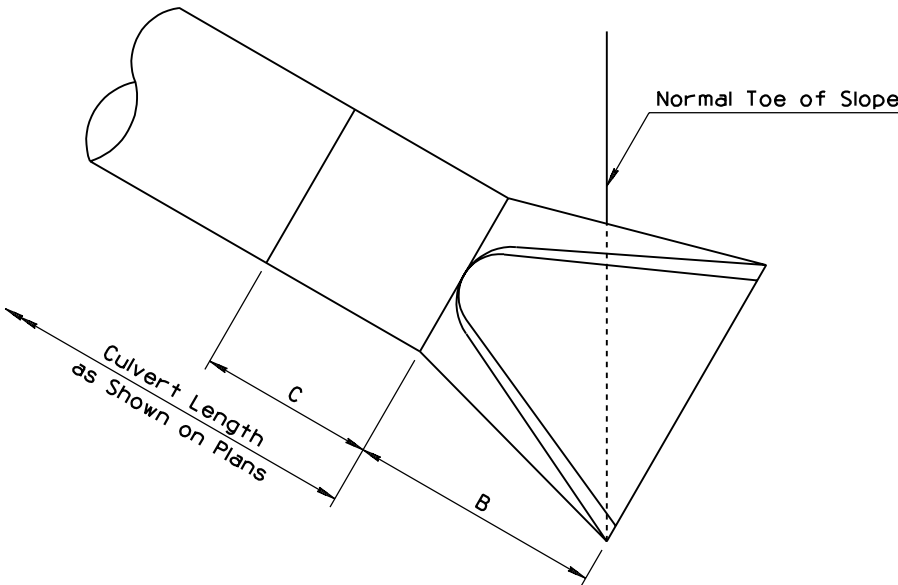
SECTION A-A



FRONT ELEVATION



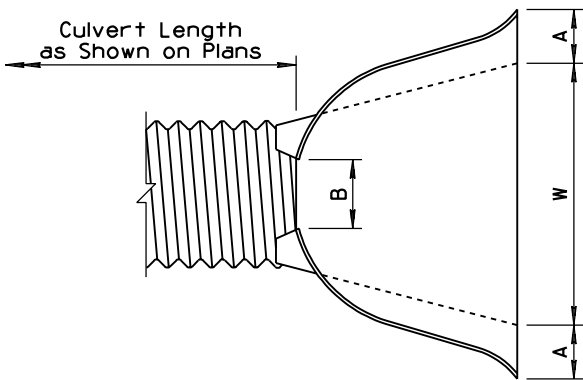
RIGHT ANGLE CULVERT



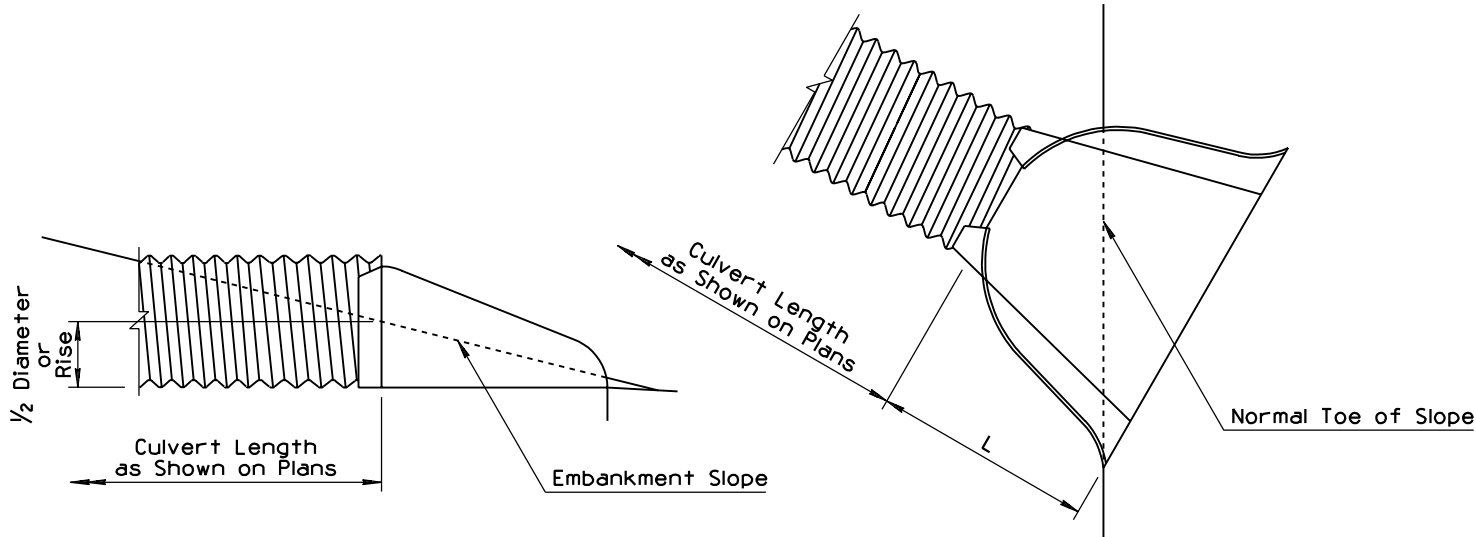
SKEWED CULVERT

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE REINFORCED CONCRETE END SECTION	DRAWING NO. C-13.20

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED DATA TABLE	BAF	6/98
2			
3			
4			



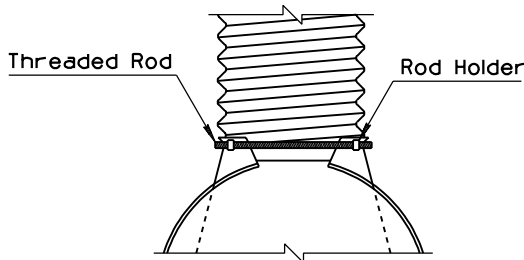
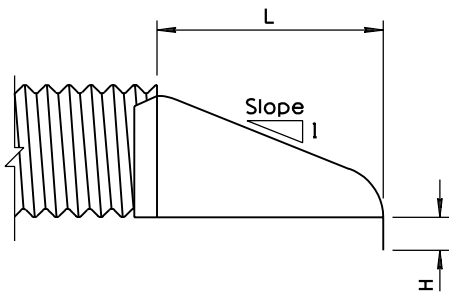
RIGHT ANGLE CULVERT



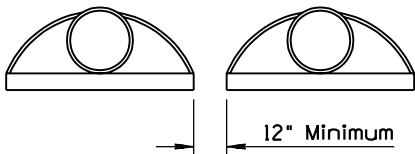
SKewed CULVERT

GENERAL NOTES

1. The end section may be joined to the pipe or connector section by bolts, rivets, dimpled bands, slip-seam bands or threaded rod type fasteners. For allowable connector types, see table.
2. The Type 1 connector is bolted or riveted. Maximum circumferential fastener spacing shall be 12" and with a minimum of 8 fasteners per joint. The Type 1 joint may be used with either annular or helical corrugations.
3. Type 2 and 3 connectors shall only be used with annular or helical pipe with a requisite number of annular corrugations.
4. Type 4 connector shall only be used with helical pipe.
5. All steel end section components shall be galvanized.
6. Toe of embankment shall be warped to match toe of skewed end section.
7. A berm shall be added to abnormal projections per Std Dwg C-13.10.
8. The foregoing applies to all cross-section configurations.

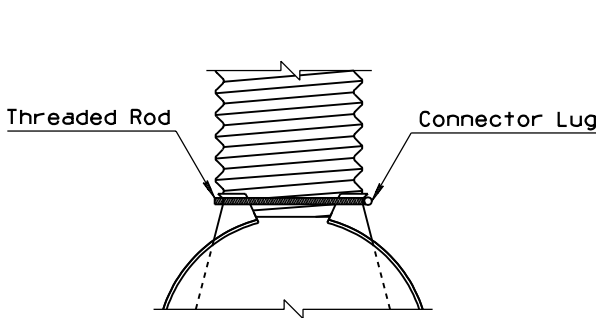


TYPE 2  
THREADED ROD CONNECTIONS

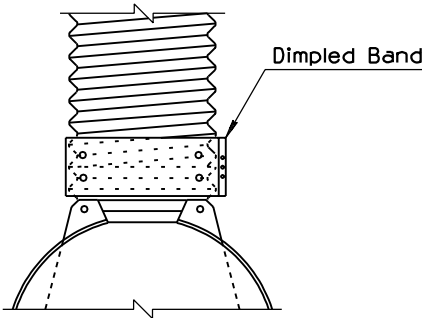


SPACING FOR MULTIPLE  
INSTALLATION

Circular Pipe		Dimensions (In)						
Diameter (In)	Gauge	A ±1	B Maximum	H ±1	L ±1½	W ±2	Approximate Slope	Connection Type
18	16	8	8	6	31	36	2½	2, 3, 4
24	16	10	13	6	41	48	2½	2, 3, 4
30	14	12¼	12½	8	51	57	2½	2, 4
36	14	14½	12	9	60	72	2½	2, 4
42	12	17	11	10½	69	84	2½	3



TYPE 3  
THREADED ROD CONNECTIONS

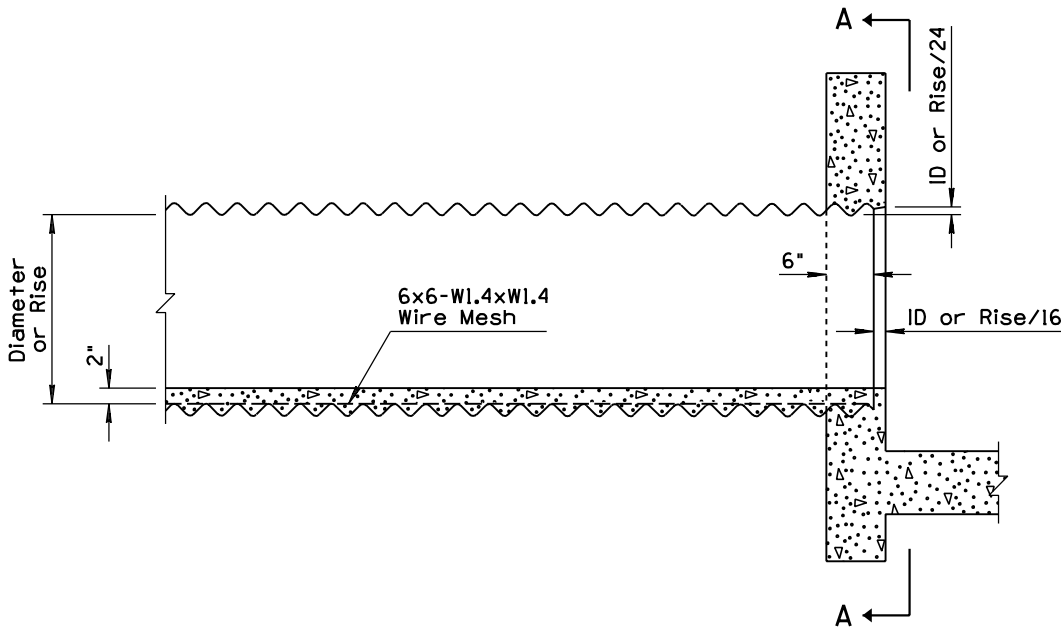


TYPE 4  
DIMPLED BAND CONNECTIONS

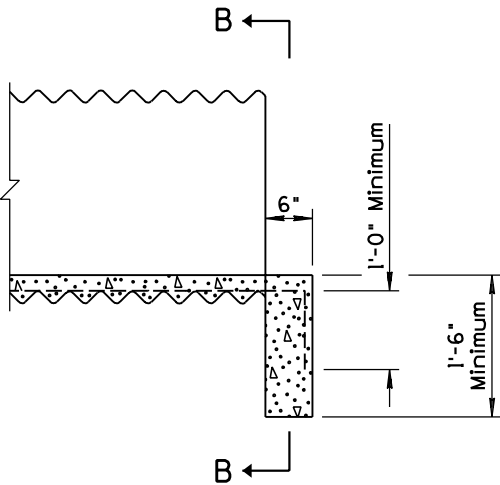
Pipe Arch			Dimensions (In)						
Span (In)	Rise (In)	Gauge	A ±1	B Max	H ±1	L ±1½	W ±2	Approximate Slope	Connection Type
21	15	16	7½	11	6	24	36	2½	2, 3, 4
28	20	16	8	16	6	32	48	2½	2, 3, 4
35	24	14	10	16	6	39	60	2½	2, 4
42	29	14	12	12	7½	46	75	2½	2, 4
49	33	12	13½	20	9	53	84	2½	3

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CORRUGATED METAL END SECTION	DRAWING NO. C-13.25

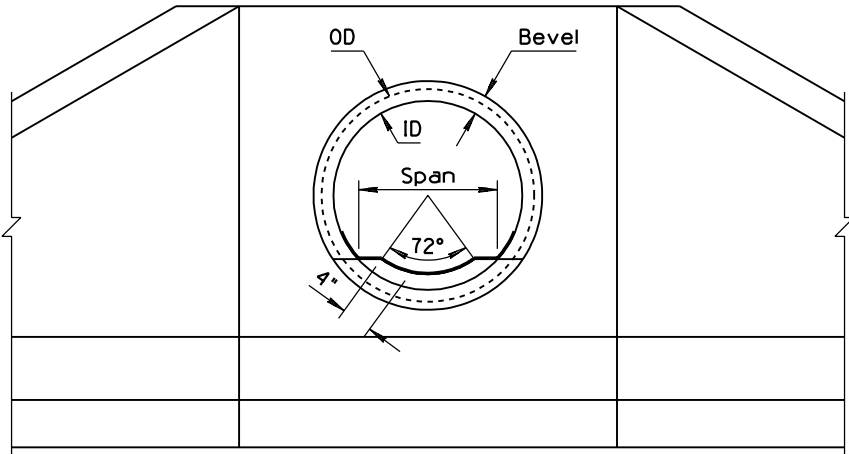
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED GENERAL NOTE 7	RLF	9/04
2			
3			
4			



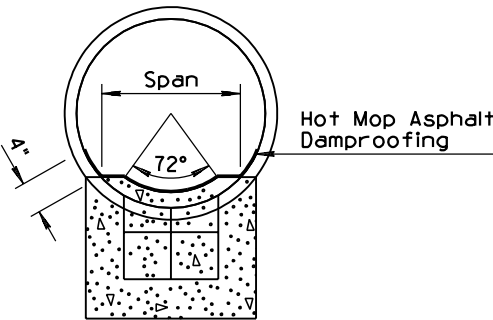
HEADWALL INSTALLATION  
(SEE STANDARD DRAWING B-11.12)



PROJECTING INSTALLATION



SECTION A-A



SECTION B-B

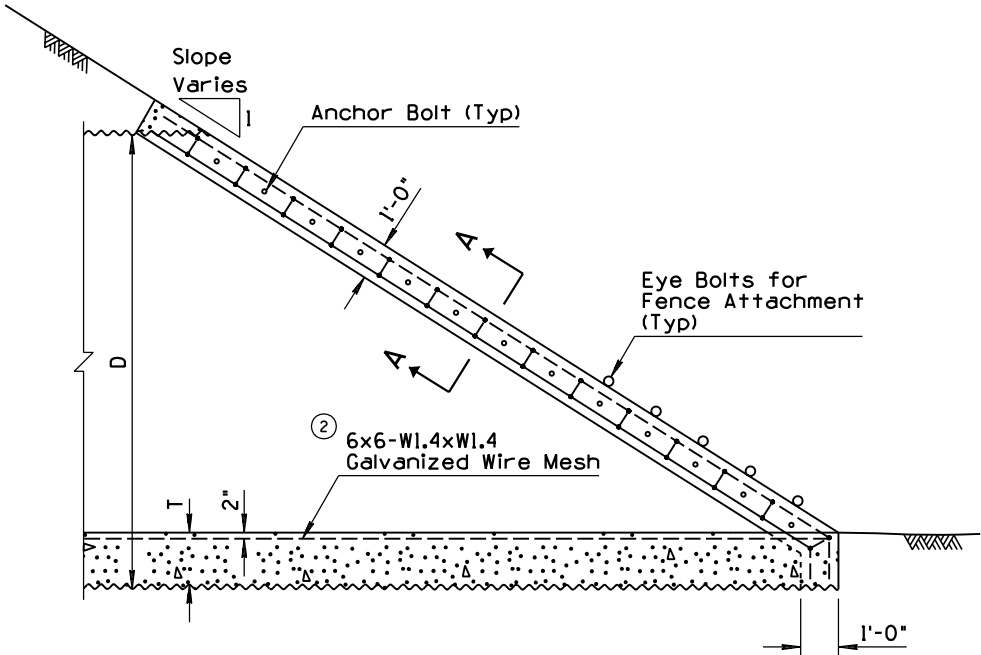
GENERAL NOTES

1. For lateral dimensions of invert paving, use 72° control for CMP and span for CMPA.
2. Paving shall be scored laterally at 1'-6" minimum intervals along the length of the pipe.
3. Use bevel on inlet headwall only.
4. Wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be 6" minimum.
5. Paving shall not be placed until backfilling is completed.
6. Concrete shall be Class B.

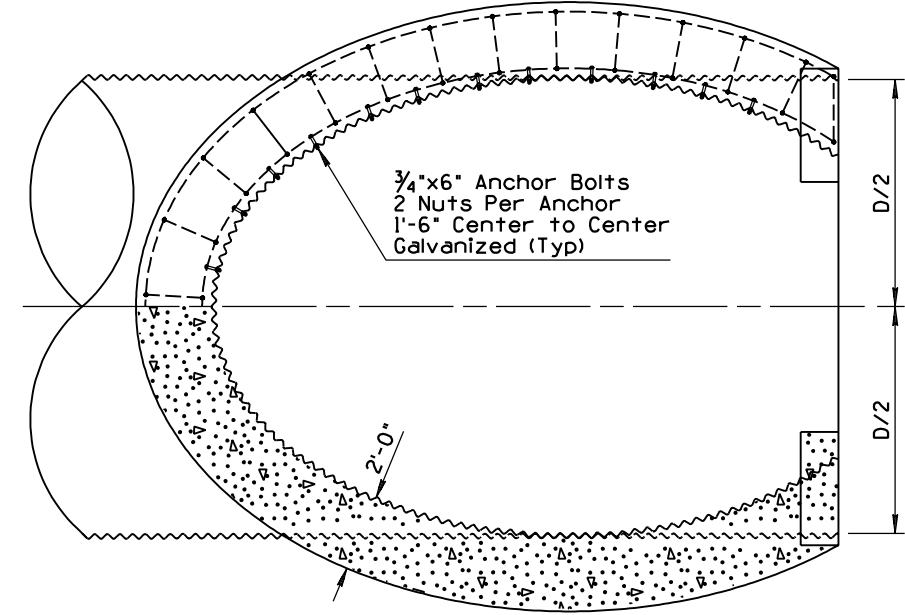
①

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE AND PIPE ARCH CORRUGATED METAL CONCRETE INVERT PAVING	DRAWING NO. C-13.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE & MEASUREMENT FORMAT	RLF	9/04
2	REVISED WIRE MESH DESIGNATION	RLF	9/04
3			
4			

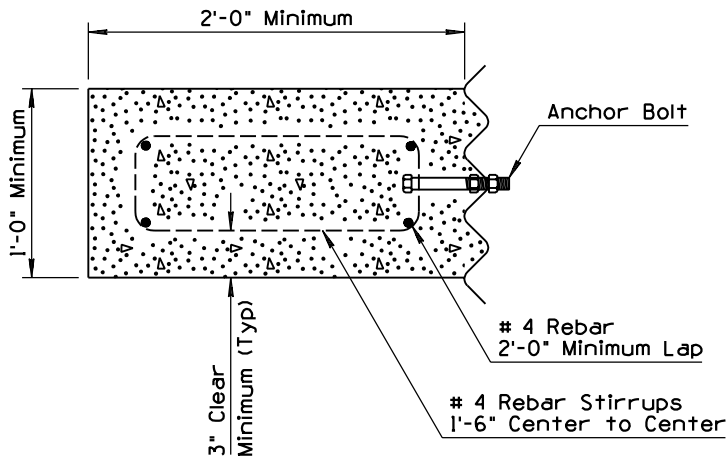


LONGITUDINAL SECTION

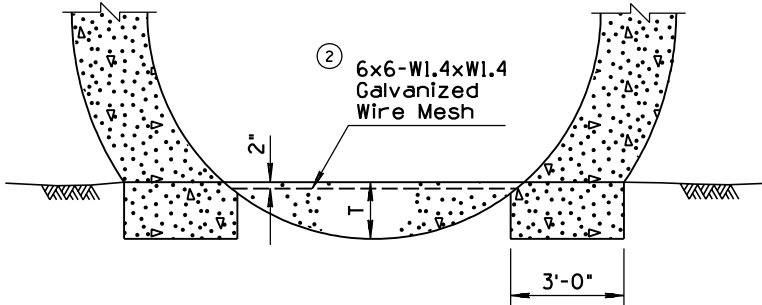


PLAN NORMAL TO SLOPE

	D (In)	T (In)
Combination Vehicle and Cattle Pass	144	18
Cattle Pass Only	120	6



SECTION A-A



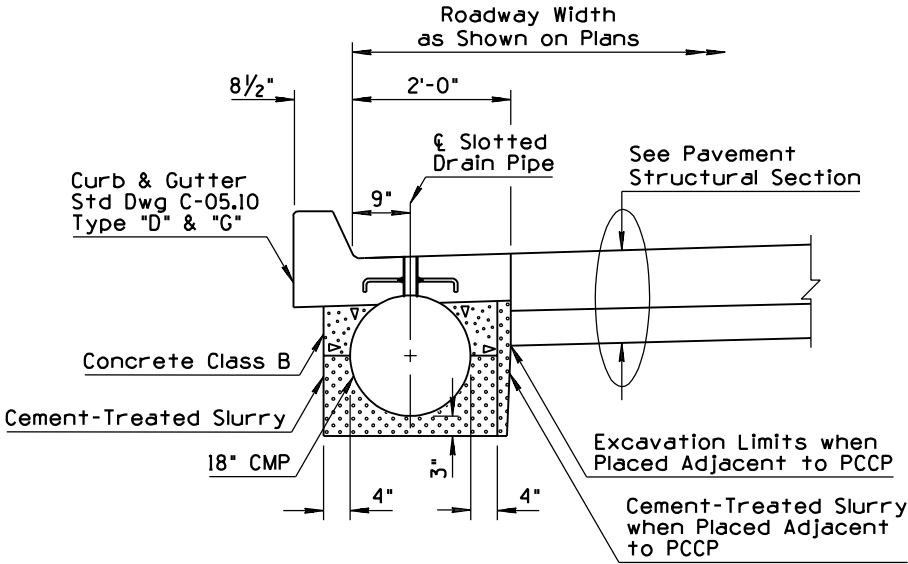
END ELEVATION

GENERAL NOTES

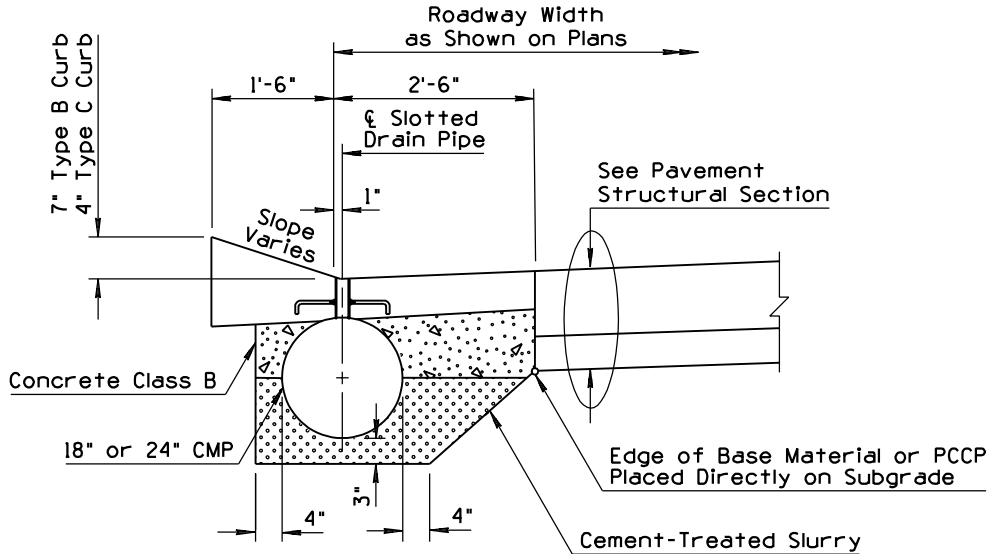
1. This end treatment is to be used only for those cattle and/or vehicle passes not used for drainage.
2. All concrete shall be Class B. An optional 12" AB invert paving base course and 6" of concrete may be used in the 144" diameter pipe.
3. Anchor bolts shall be retained in a horizontal position during pour with final tightening a minimum of 7 days after pour.
4. Pipe shall be backfilled before concrete bond beam is constructed. Minimum forming may be used.
5. Edges of wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be a minimum of 6".
6. For installation normal to roadway centerline only.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE CATTLE/VEHICLE PASS MITERED END TREATMENT	DRAWING NO. C-13.55

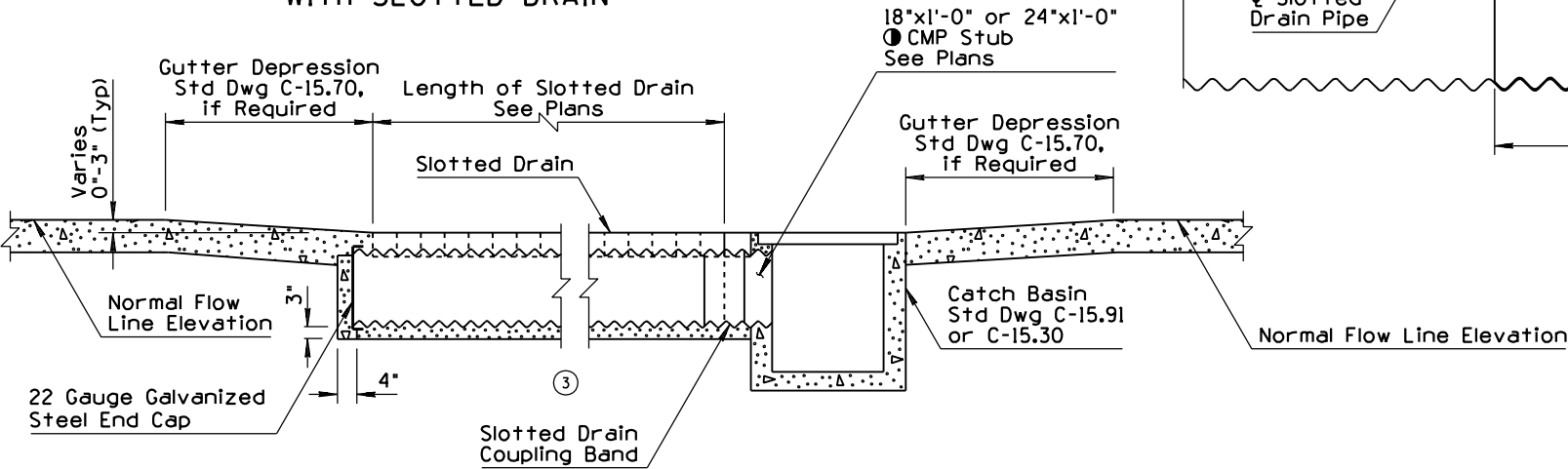
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	ADDED DESIGNATION	RLF	9/04
2	ADDED NOTE	RLF	9/04
3	REMOVED AB CLASS 2 CALLOUT	RLF	9/04
4	ADDED GENERAL NOTE 15	RLF	/04



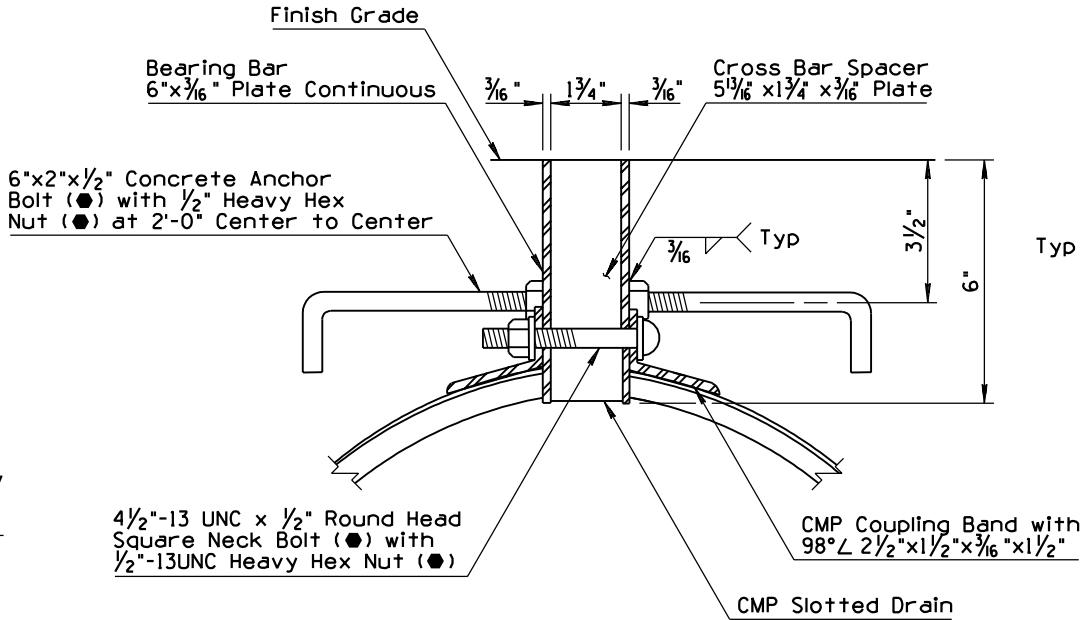
TYPE D & G CURB AND GUTTER WITH SLOTTED DRAIN



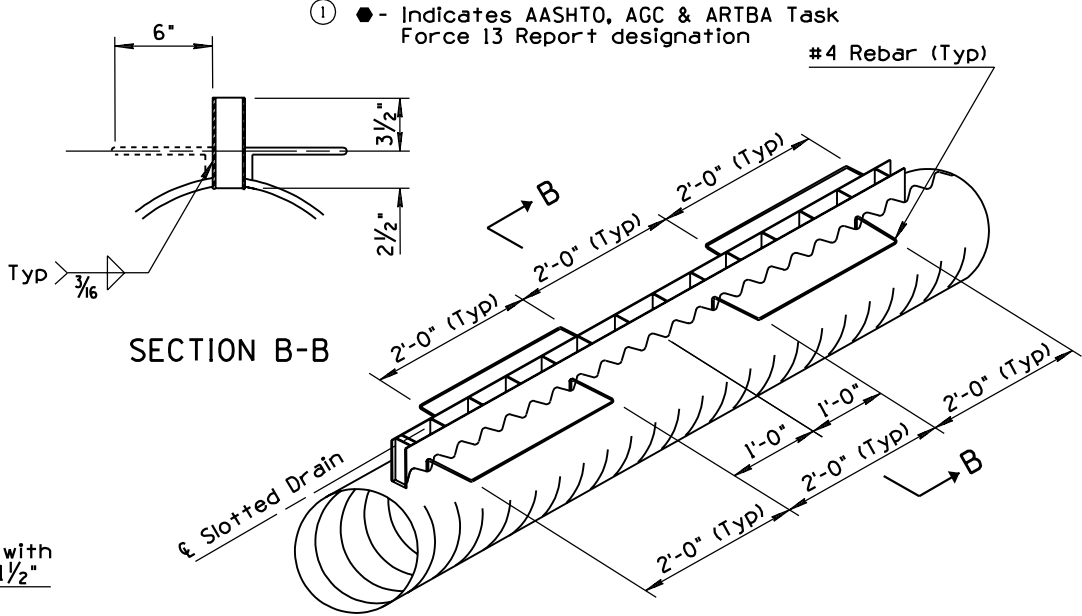
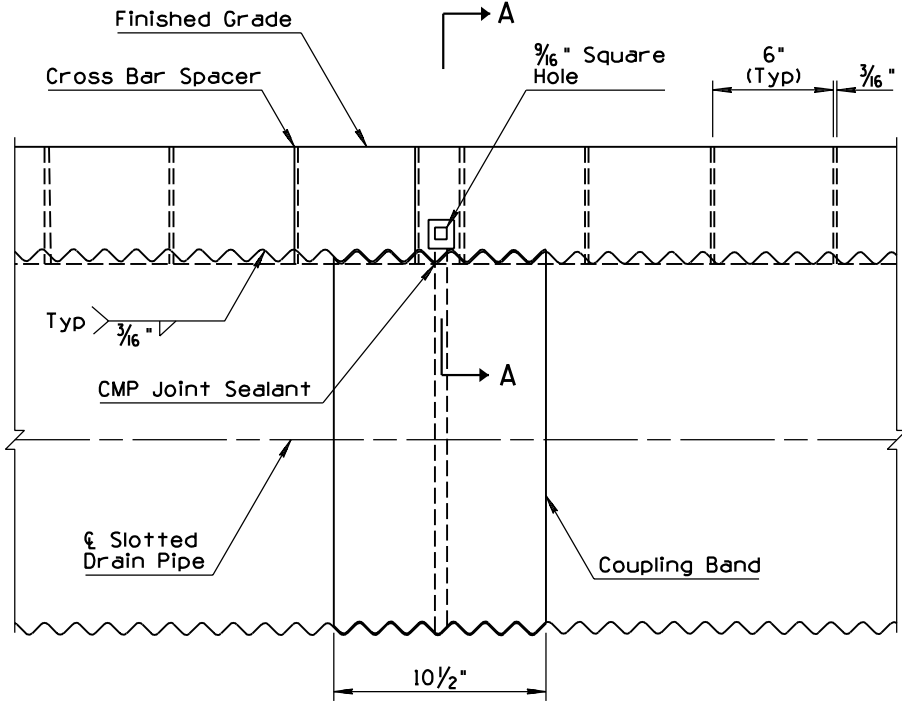
TYPE B OR C CURB AND GUTTER WITH SLOTTED DRAIN



CONNECTION OF SLOTTED DRAIN TO CATCH BASIN AND SLOTTED DRAIN END CAP



SECTION A-A

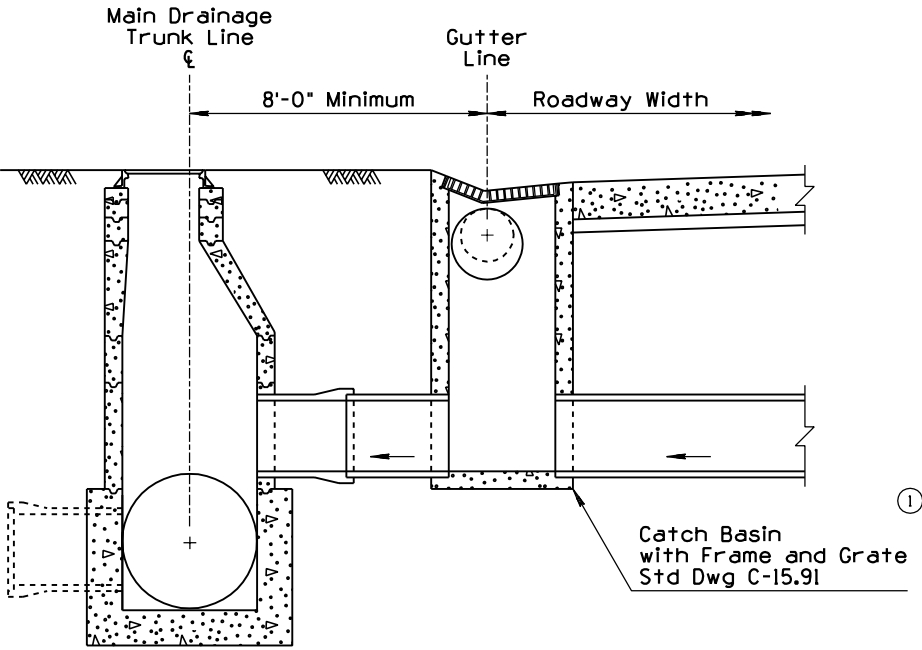


GENERAL NOTES

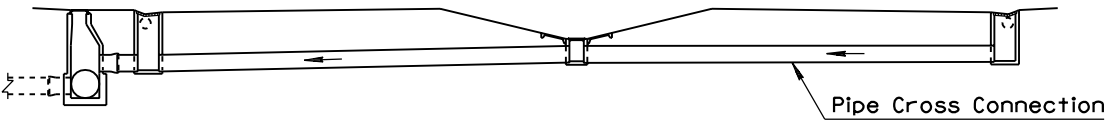
- Slotted drain pipe shall be 2 3/8 inches by 1/2 inch corrugated steel pipe with a minimum wall thickness of 0.064 inch and shall conform to the requirements of AASHTO M36.
- All concrete shall be Class B.
- Rebar shall conform to Std Spec 1003-2.
- Structural steel shall conform to ASTM A36.
- Concrete anchors shall conform to ASTM A307 and hex nuts shall conform to ASTM A563 Grade A.
- All slotted drain pipe hardware except anchor bolts and rebar shall be given two coats of Number 1 paint.
- When annular pipe is used, apply water proof sealer before attaching coupling band.
- When helical pipe is used, it shall be formed with at least one annular corrugation at each end of each pipe section. Water proof sealer shall be applied to the annular corrugation prior to attachment of coupling band.
- Cover slot during construction with removable tape or other acceptable substitute.
- Slotted drain pipe shall be clean at the time of final acceptance.
- Concrete curb and gutter through the slotted drains shall be paid for under the respective curb and gutter items.
- Refer to curb and gutter details for dimensions and details not shown.
- Joints in concrete curb & gutter shall match adjoining PCCP and slotted drain bands.
- All welding shall be in accordance with Std Spec 604-3.06.
- Bolts or rebar may be used for concrete anchoring.
- The 18 inches by 1 foot or 24 inches by 1 foot CMP stub shall be included in the price of respective catch basins.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SLOTTED DRAIN DETAILS	DRAWING NO. C-13.60

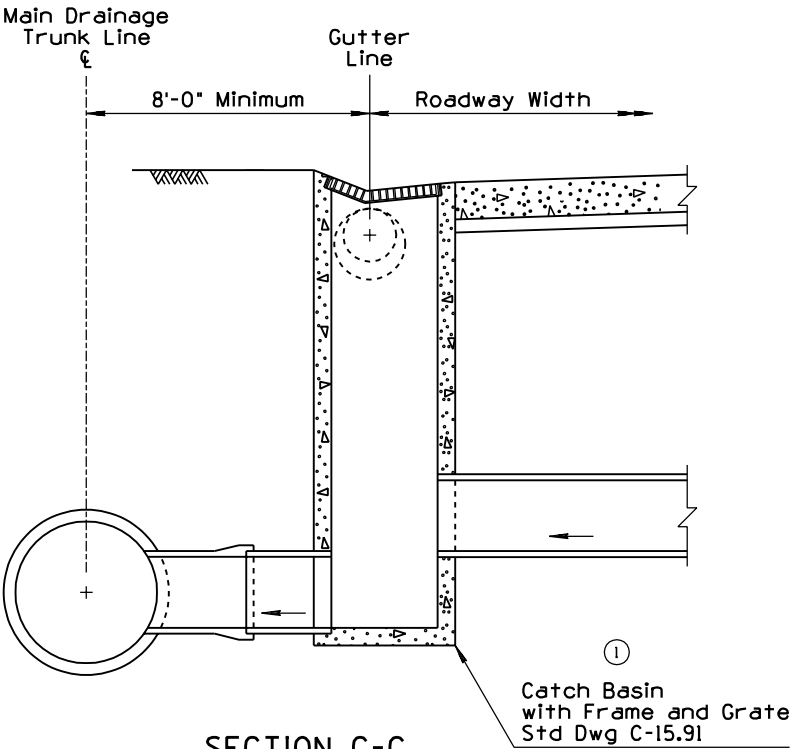
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CATCH BASIN REFERENCE	RLF	9/04
2			
3			
4			



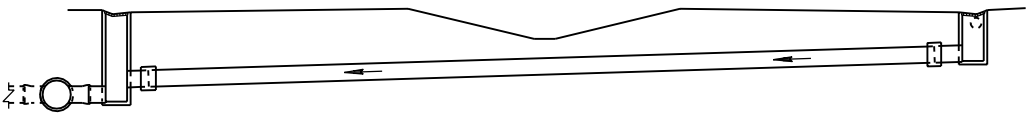
SECTION A-A  
TYPICAL CONNECTION BETWEEN  
CATCH BASIN AND MANHOLE



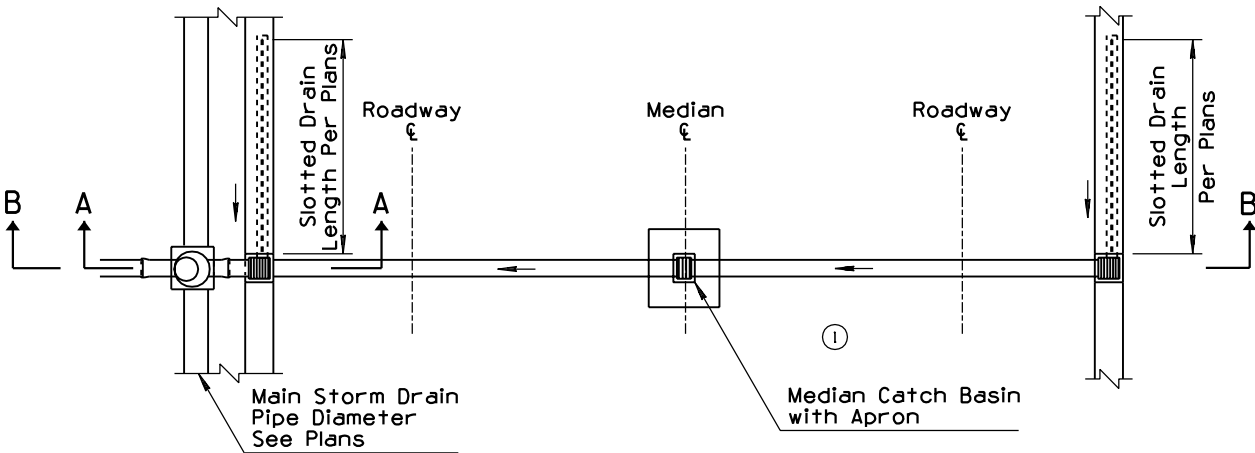
SECTION B-B



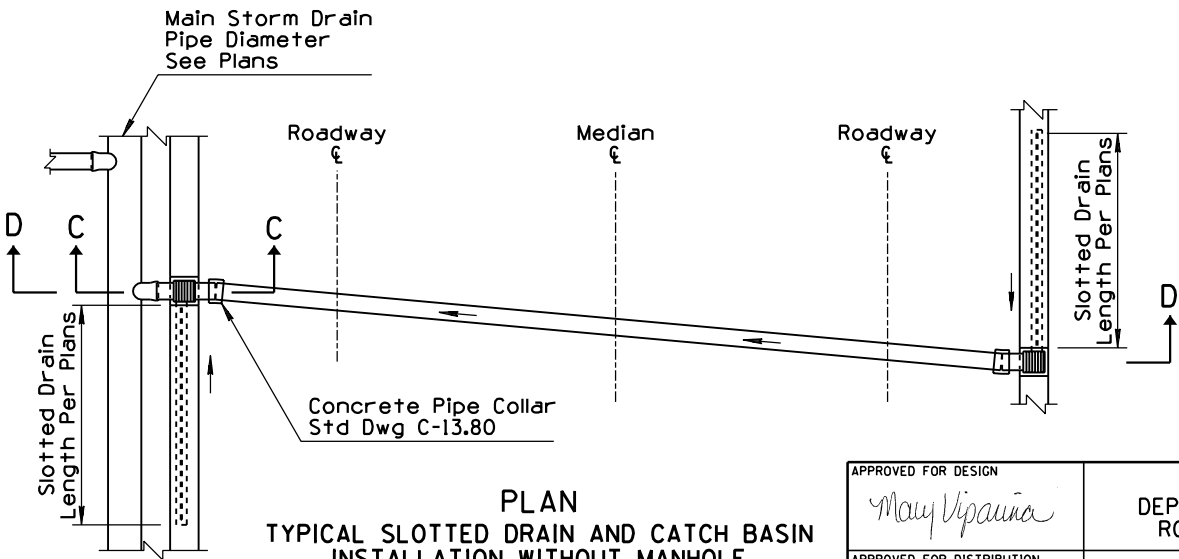
SECTION C-C  
TYPICAL CONNECTION BETWEEN  
CATCH BASIN AND MAIN STORM DRAIN



SECTION D-D



PLAN  
TYPICAL SLOTTED DRAIN AND CATCH BASIN  
INSTALLATION WITH MANHOLE



PLAN  
TYPICAL SLOTTED DRAIN AND CATCH BASIN  
INSTALLATION WITHOUT MANHOLE

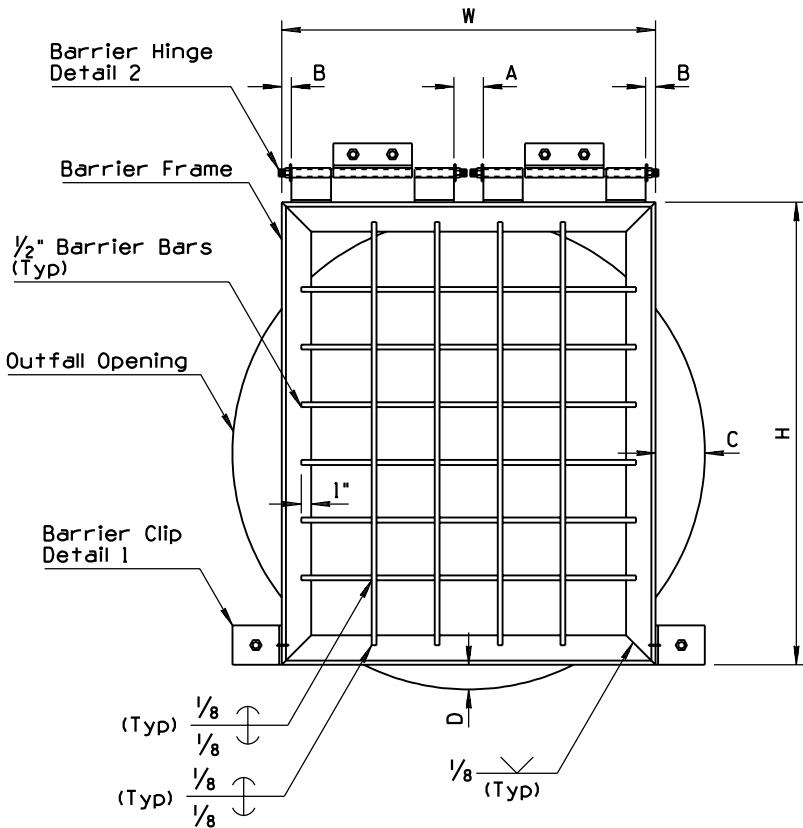
### GENERAL NOTES

1. Pipe collars are not required where direct catch basin connections can be made within 7° of a normal 90° installation, either horizontally or vertically.
2. "T" connections direct to the main drainage trunk line should be avoided and used only where manhole connections are impractical.

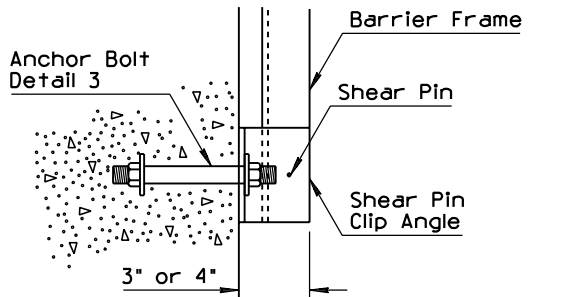
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SLOTTED DRAIN INSTALLATION DETAILS	DRAWING NO. C-13.65



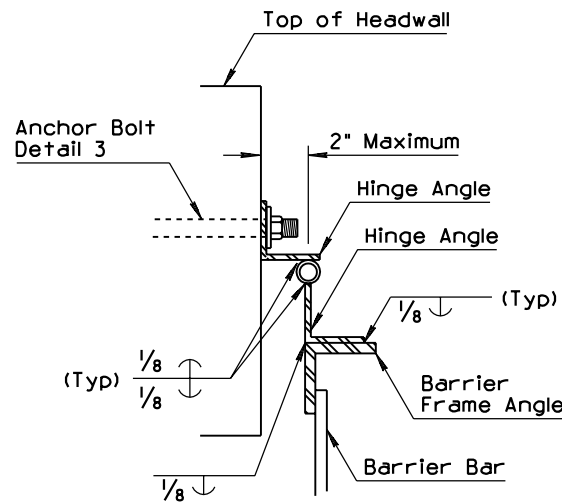
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD	RLF	9/04
2	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
3	MODIFIED STEEL QUANTITIES	RLF	9/04
4			



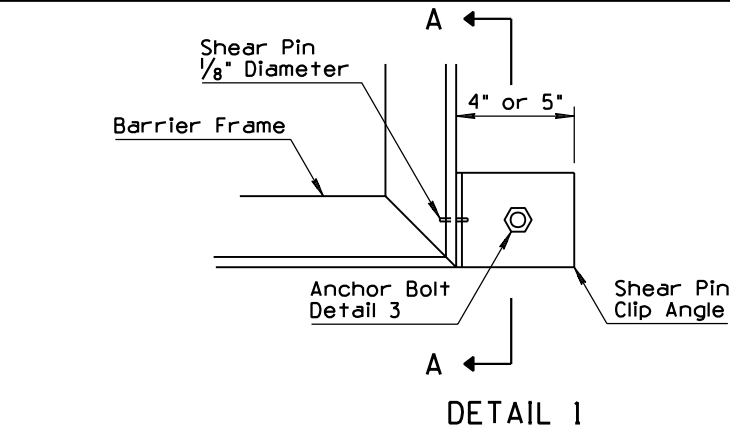
PIPE ACCESS BARRIER FRONT ELEVATION



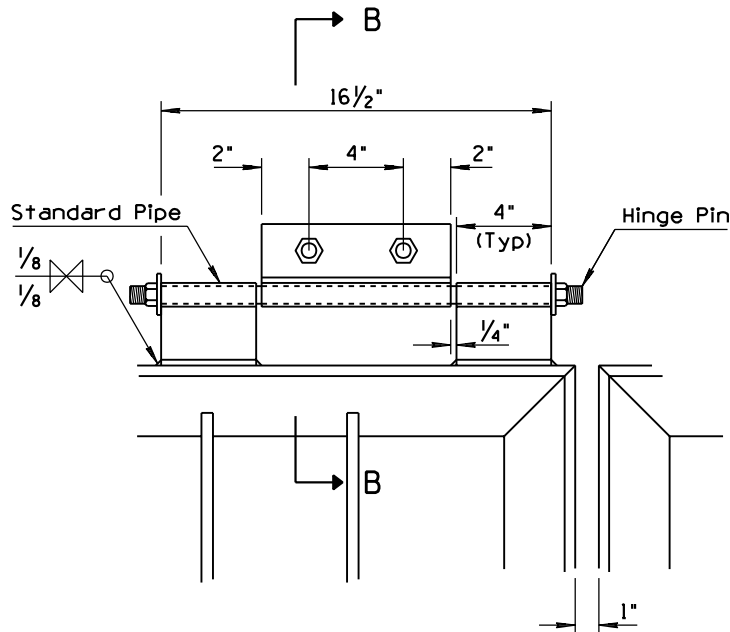
SECTION A-A



SECTION B-B

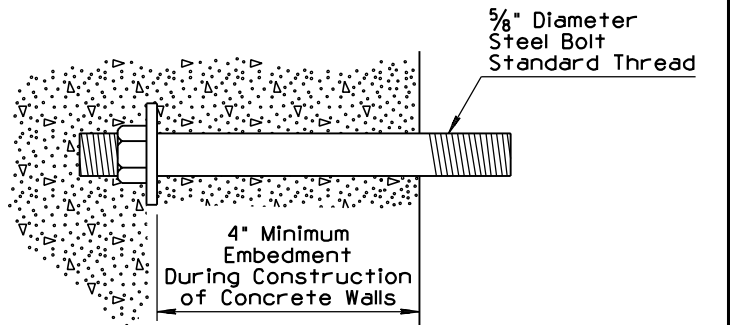


DETAIL 1



DETAIL 2

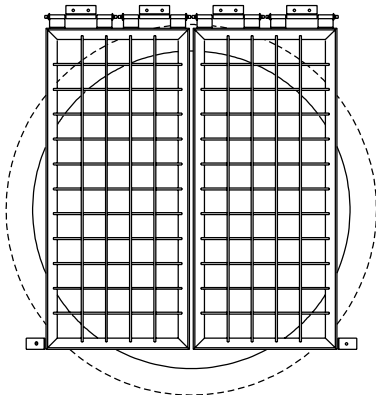
- ### GENERAL NOTES
1. All shear pin angles shall fit snug and true to face. Cover with waterproof grease prior to installation of pin.
  2. Shear pin holes in the angle shall be drilled for a tight fit of the pins.
  3. Both ends of the shear pins shall be peened after installation.
  4. Shear pin material shall be commercially pure aluminum wire alloy 1100, Temper 0, Federal Spec 00-A411.
  5. Galvanize all ferrous parts after fabrication.
  6. Frame and hinge angles shall have the outstanding legs out.
  7. All steel shall be in accordance with ASTM A36.
  8. Barrier bars shall be equally spaced.
  9. Hinge pin material shall be bolt stock and threaded on both ends so nut and lock washer are flush with the lower angle. Cover pin with waterproof grease prior to installation. Upset or damage exposed threads after installation.
  10. All welding shall be in accordance with Std Spec 604-3.06.



DETAIL 3

ACCESS BARRIER GATE DIMENSION SCHEDULE															
Outfall Pipe ID (In)	Number of Barrier Gates	Frame Angles	Shear Pin Clip Angles	Hinge Pin Diameter (In)	Hinge Angles	Hinge Std Pipe Diameter (In)	Number & Length of Vertical Bars	Number & Length of Horizontal Bars	H (In)	W (In)	A (In)	B (In)	C (In)	D (In)	③ Structural Steel (Lbs)
30	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-31	4-34	33	36	3	0	-3	2	80
36	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-31	4-34	33	36	3	0	0	3.5	80
42	1	2 x2 x 1/4	4 x4 x 1/4	1/2	2 x2 x 1/4	3/4	4-41	5-34	43	36	3	0	3	0.5	90
48	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-46	6-34	50	38	3	1	5	1	180
54	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	5-52	7-40	56	44	5	3	5	2	205
60	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	6-58	8-46	62	50	9	4	5	3	235
66	1	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	7-64	9-52	68	56	11	6	5	4	265
72	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-69 *	9-34 *	73	38	3	1	-2.5	5	445
78	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-75 *	10-34 *	79	38	3	1	0.5	5	470
84	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-81 *	11-34 *	85	38	3	1	3.5	5	495
90	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	4-87 *	12-36 *	91	40	3	2	4.5	5	525
96	2	3 x3 x 7/16	5 x3 x 1/4	3/4	2 1/2 x2 1/2 x 1/4	1	5-93 *	13-39 *	97	43	4	3	4.5	5	580

\* Per Gate



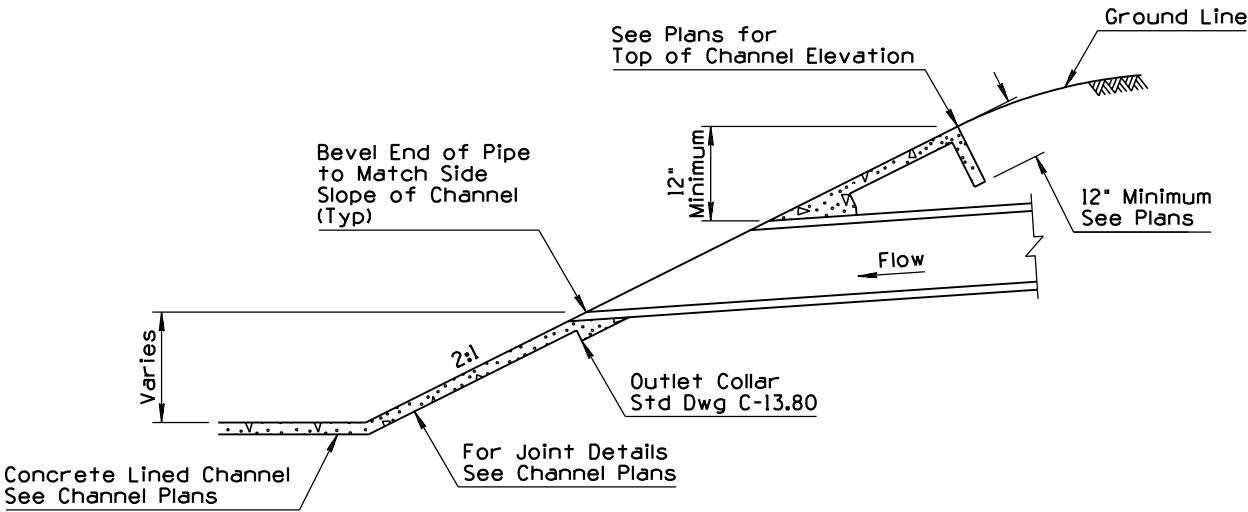
INSTALLATION DETAIL FOR DOUBLE GATES

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	STORM DRAIN OUTLET BARRIER GATE ①	DRAWING NO. C-13.75 ①

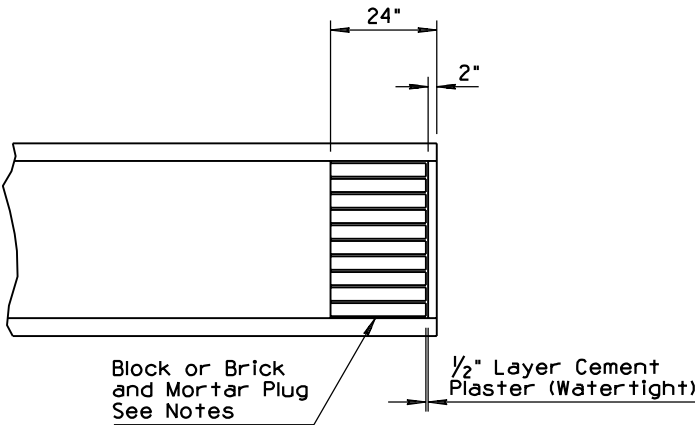
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STANDARD FROM C-13.75, SHEET 2	RLF	9/04
2			
3			
4			

GENERAL NOTES

- 1. Compact soil at end of pipe plug to 95% of maximum density.
- 2. If depth of cover is less than 5' or greater than 10', increase plug thickness a minimum of 4".



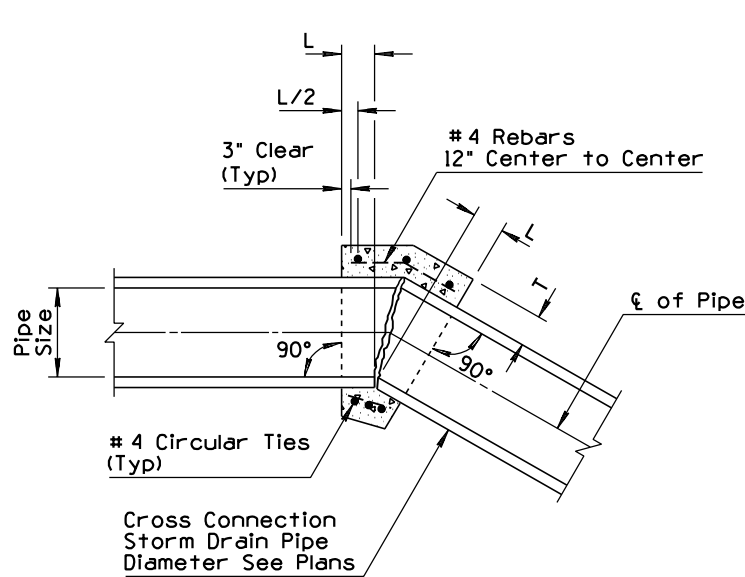
DRAINAGE OUTLET INTO CHANNEL



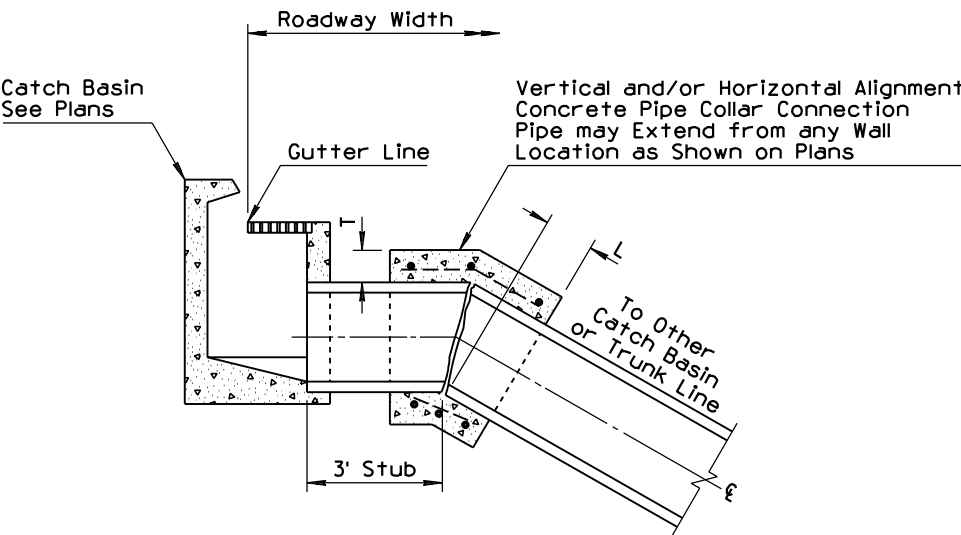
STORM DRAIN PLUG

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	STORM DRAIN OUTLET AND STORM DRAIN PLUG ①	DRAWING NO. ① C-13.76

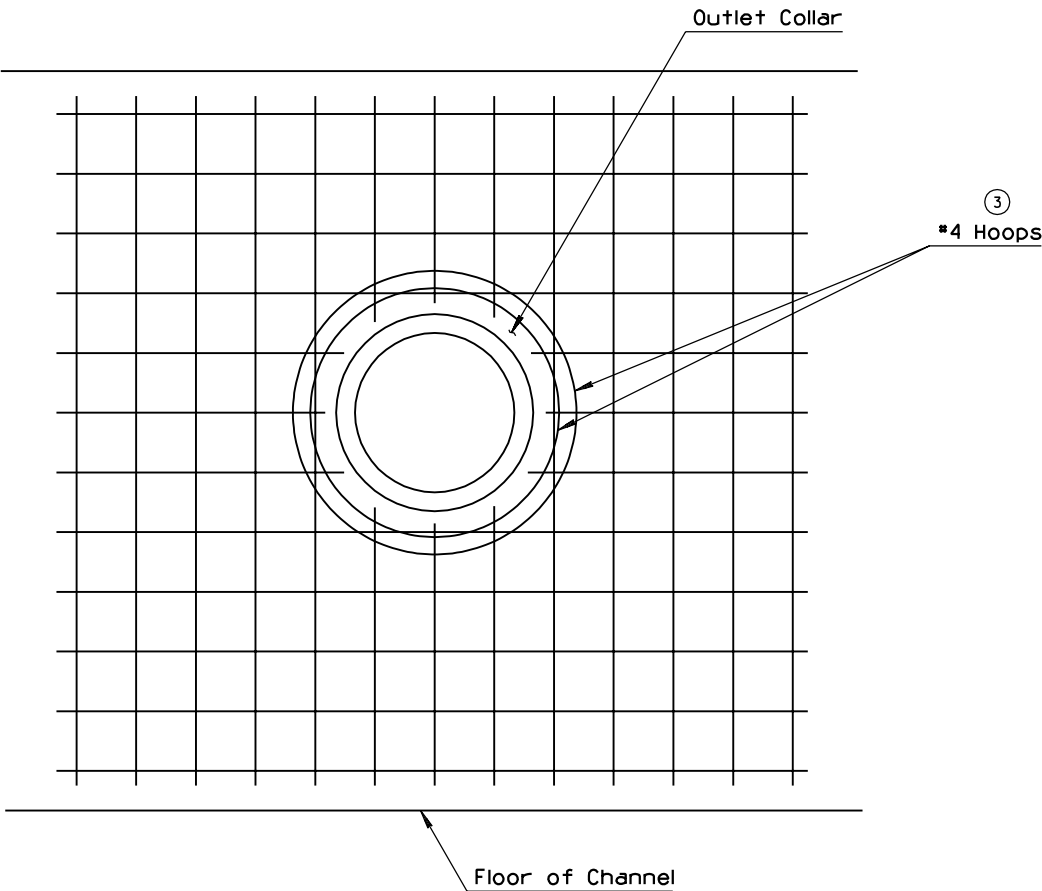
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED TABLE VALUES	RLF	9/04
2	MODIFIED GENERAL NOTE 2	RLF	9/04
3	ADDED CALLOUT	RLF	9/04
4			



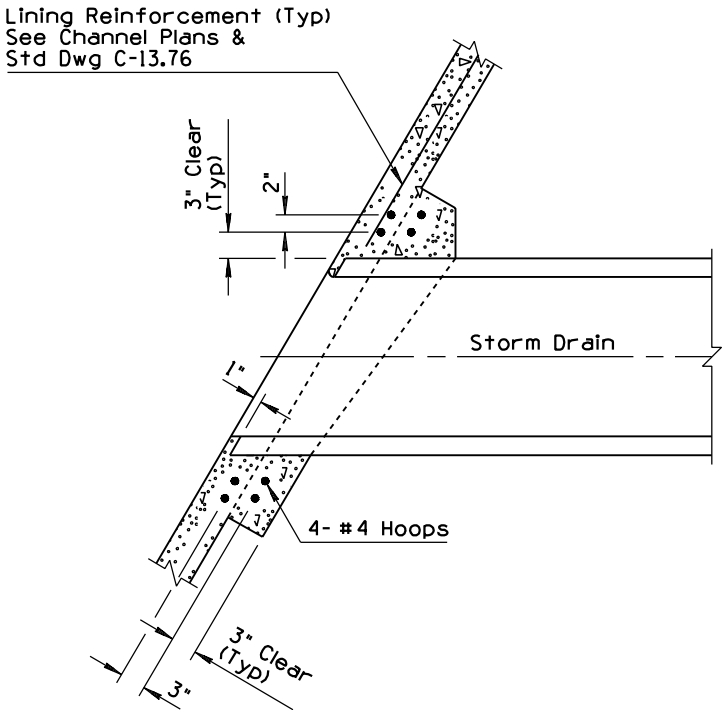
CONCRETE PIPE COLLAR



TYPICAL LATERAL CONNECTIONS TO CATCH BASINS WITH CONCRETE COLLARS



OUTLET COLLAR DETAIL



GENERAL NOTES

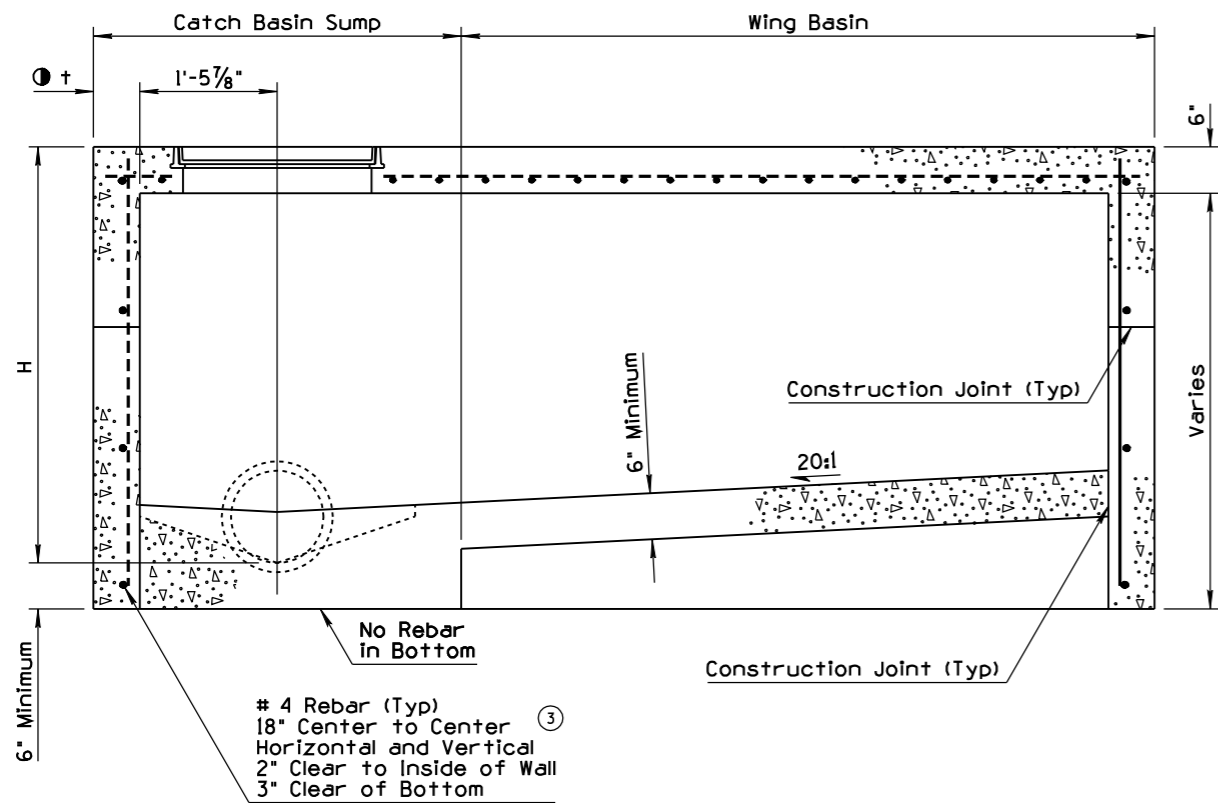
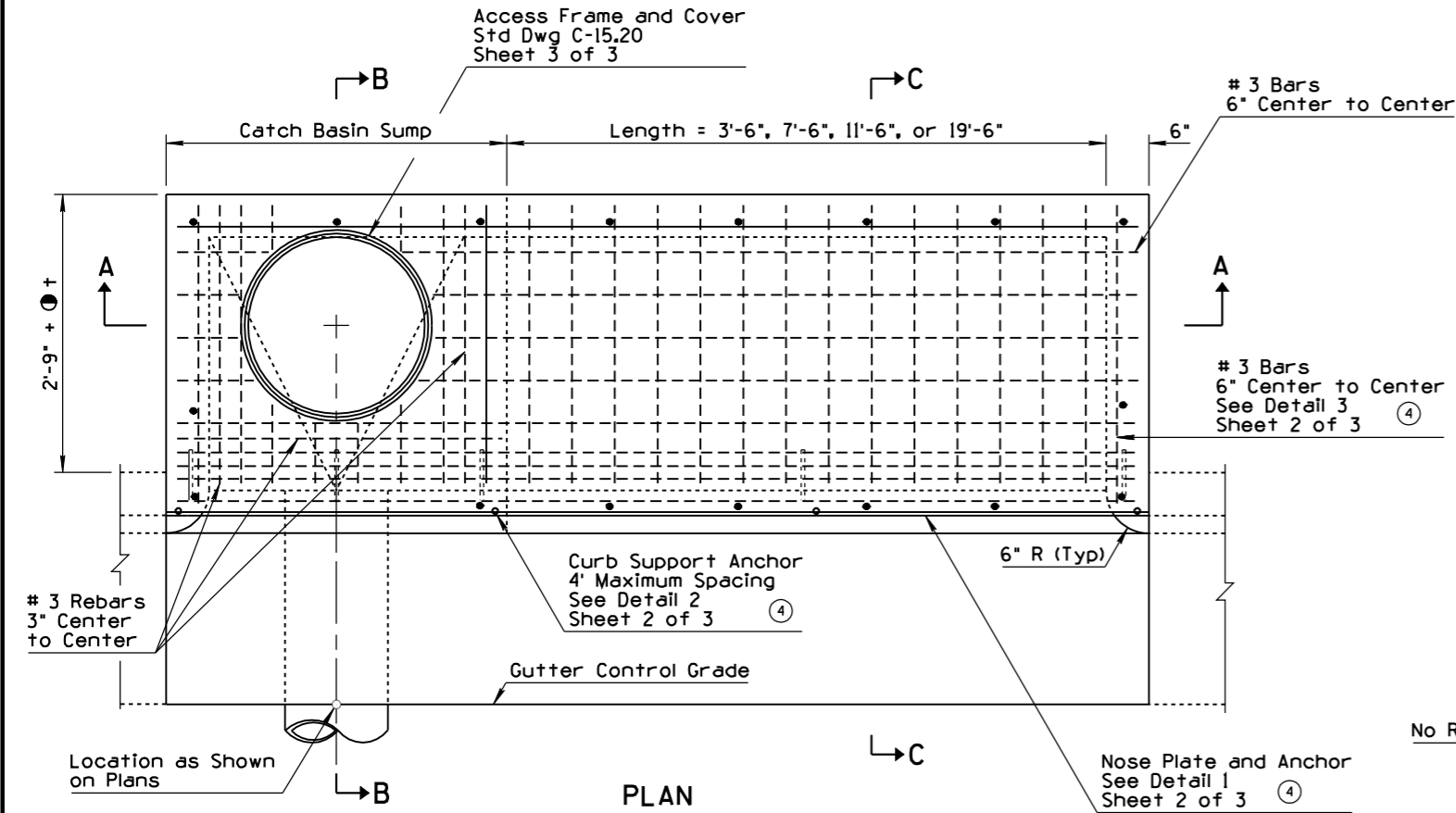
1. All concrete shall be Class B.
2. All rebar shall conform to Std Spec 1003-1.2.
3. All rebar shall have 3" minimum clear cover.
4. A concrete collar shall be required where pipes of different diameters or materials are joined or where the design change in alignment or grade exceeds that allowed for a standard joint.
5. When pipes of different diameters are joined with a concrete collar, "L" & "T" shall be those of the larger diameter.
6. The diameter of the circular ties shall be the outside diameter of pipe + T.
7. Pipe ends to be trimmed such that the maximum distance between pipes at any point is 2".

PIPE COLLAR TABLE			
Pipe Size (In)	L (Ft-In)	T (In)	#4 Ties
12	1-0	4	3
18	1-0	5	3
24	1-0	6	3
30	1-6	8	3
36	1-6	8	3
42	1-9	10	4
48	1-9	10	4
52	1-9	10	4
60	1-9	11	4
66	2-0	11	5
72	2-0	14	5
78	2-0	14	5
84	2-3	16	5
96	2-3	16	5

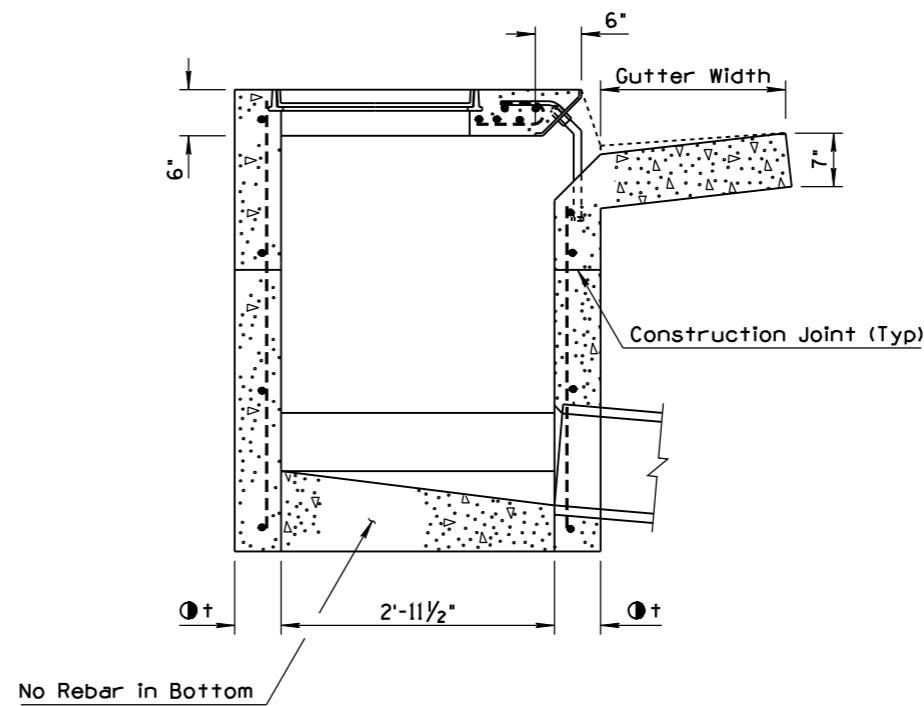
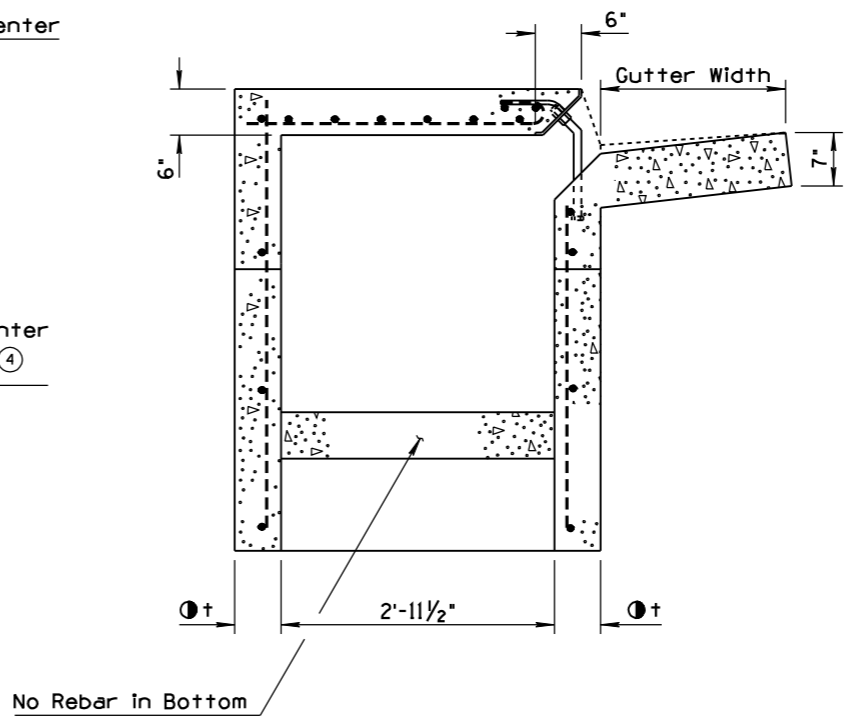
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	PIPE COLLAR DETAILS	DRAWING NO. C-13.80



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED NOTES 5, 10 & 11	RLF	9/04
2	DELETED GENERAL NOTE 9	RLF	9/04
3	ADDED CALLOUT	RLF	9/04
4	REVISED SHEET NUMBER REFERENCE	RLF	4/06



SECTION A-A  
USE THIS SECTION WHEN H=5' OR LESS

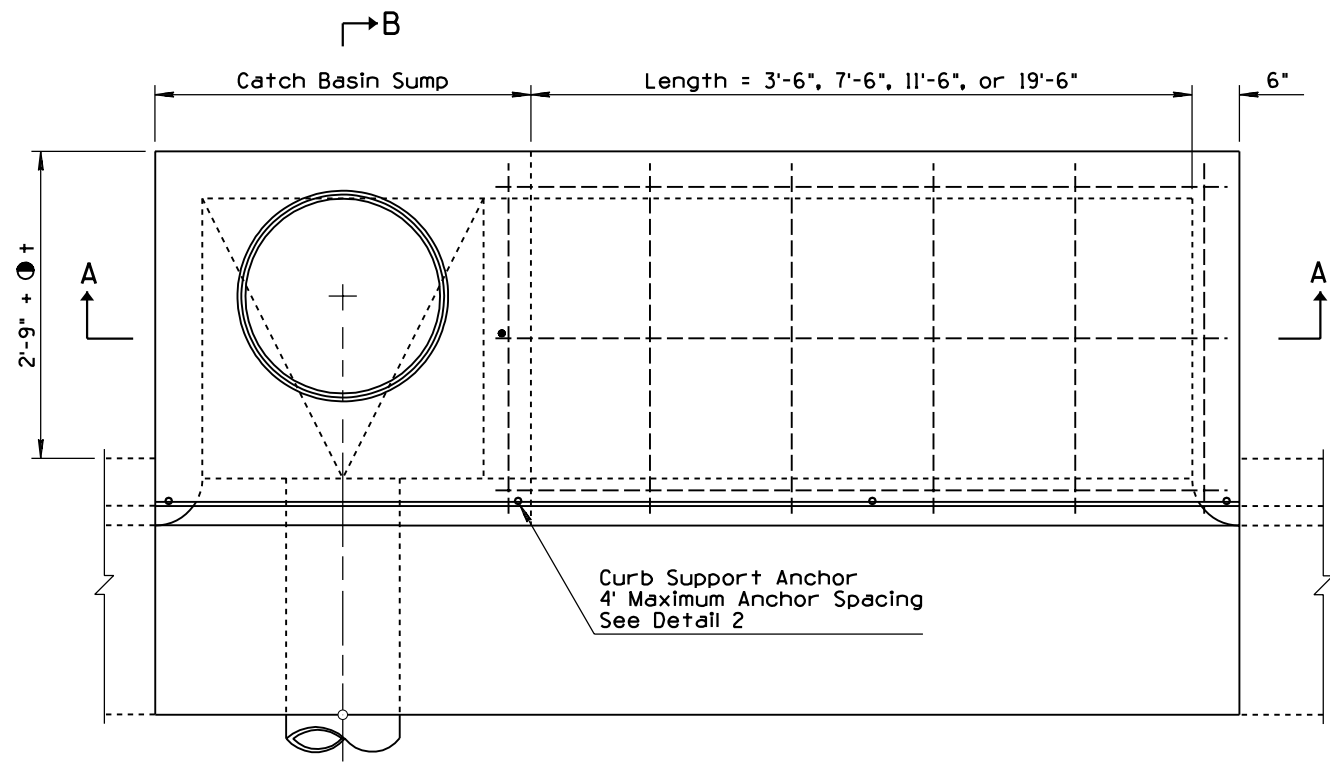


GENERAL NOTES

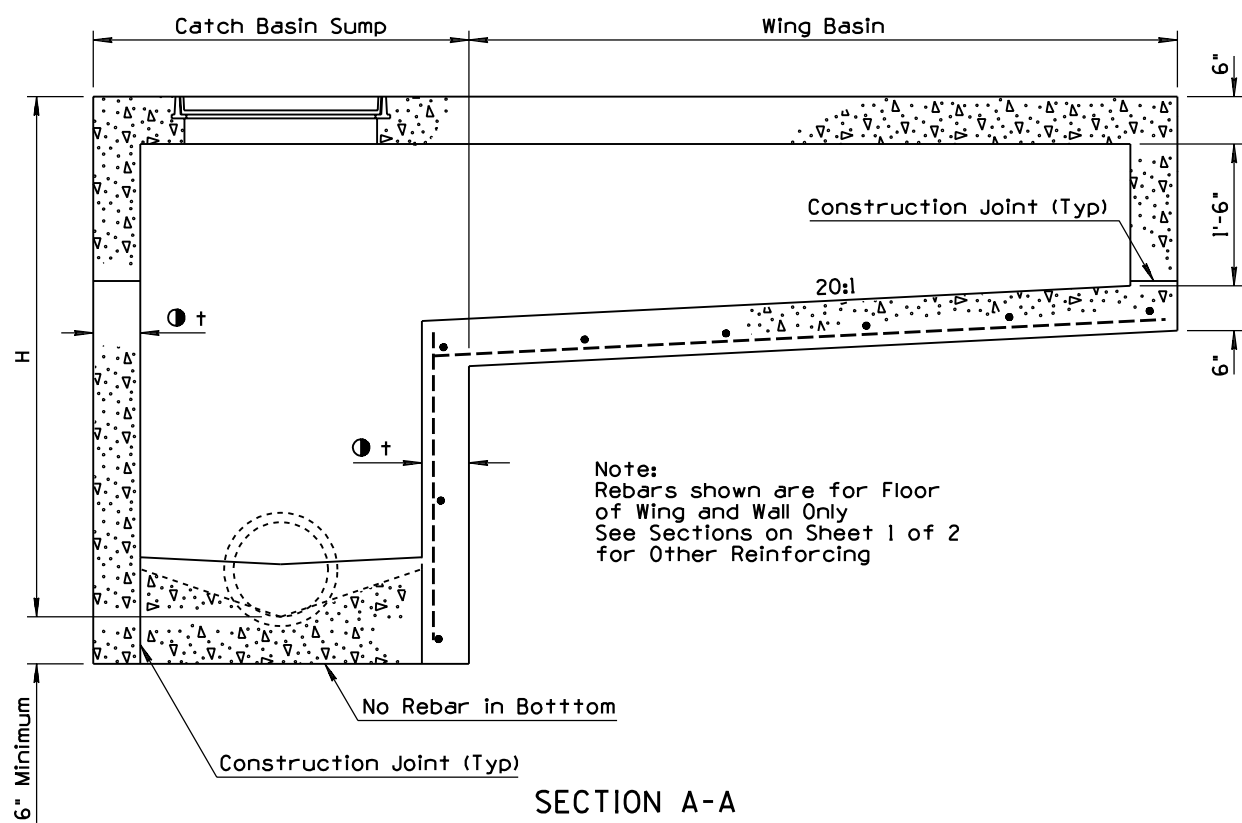
- Catch basin can be used on grade or at roadway sag.
- Catch basin has three configurations:  
④ Sump Only-Sump portion of catch basin (See Detail 4, Sheet 2 of 3).  
Single Wing (Illustrated)-Sump with wing basin upstream.  
Double Wing-Sump with symmetrical wing basins each side.
- Pipes can be placed in any wall except wall adjacent to wing basin.
- Floor shall be a wood trowelled finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 4:1.
- ① Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
- All rebar shall be ASTM A36.
- Nose plate, access frame and cover shall be given one shop coat of Number 1 paint.
- All concrete shall be Class B.
- ② 9. Curb opening area (sq ft) per inch of curb "h" + gutter depression = curb opening length (ft) x 0.0833.
- ① 10. All welding shall be in accordance with Std Spec 604-3.06.
- ① 11. Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
12. ① + = 6" when H is 8' or less.  
8" when H is greater than 8'.

APPROVED FOR DESIGN <i>Mary Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	CATCH BASIN TYPE 3	DRAWING NO. C-15.20 Sheet 1 of 3

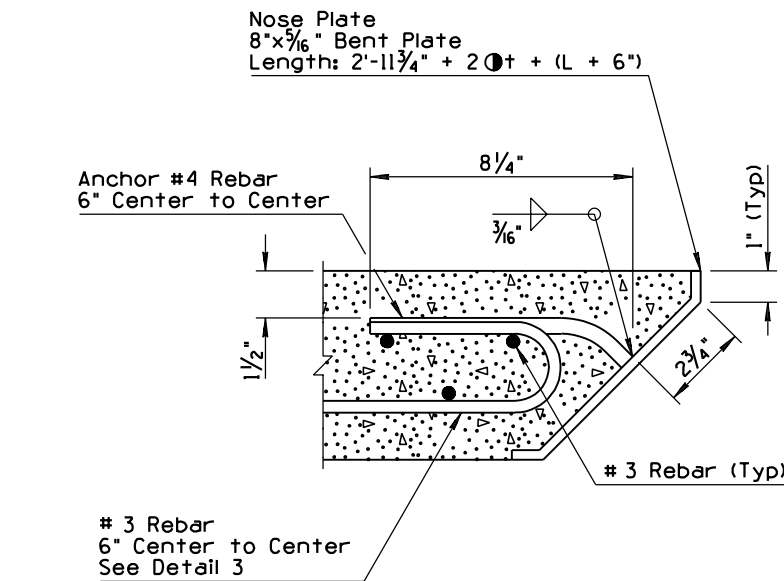
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
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4			



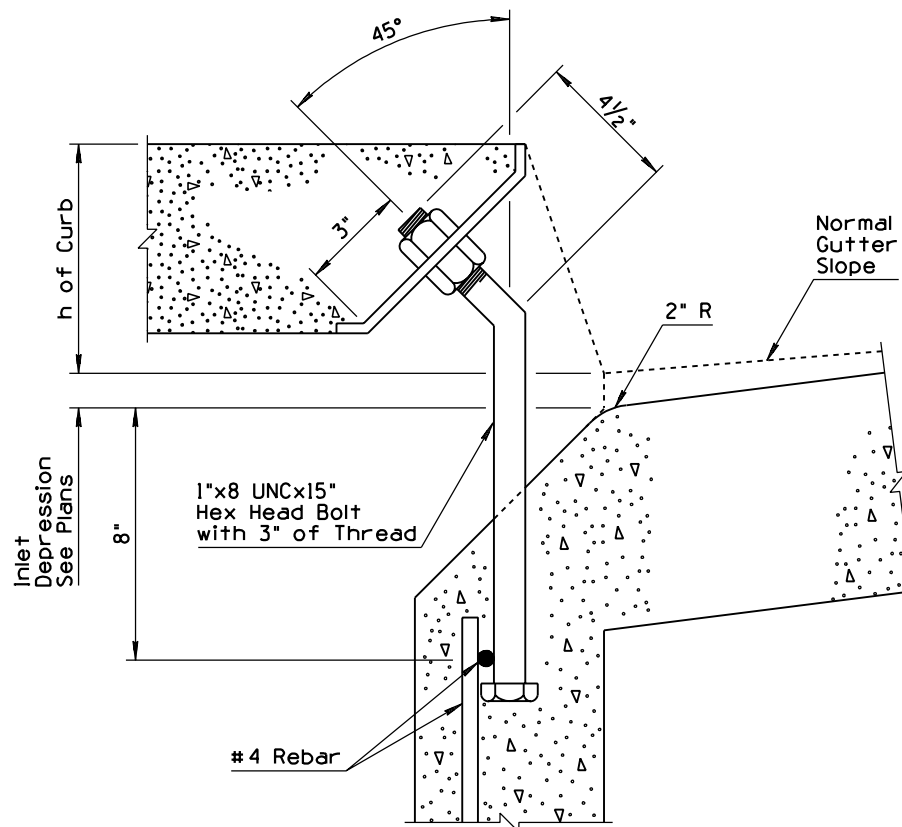
PLAN



SECTION A-A  
USE THIS SECTION WHEN H IS GREATER THAN 5'

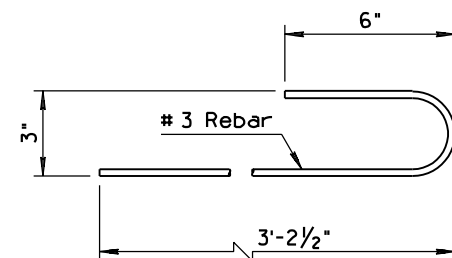


DETAIL 1

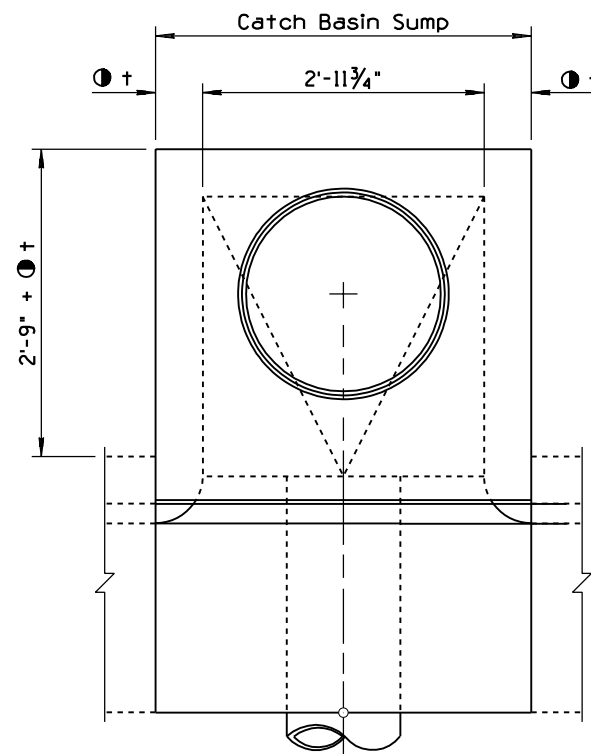


DETAIL 2  
CURB SUPPORT ANCHOR

- GENERAL NOTES
- See Sheet 1 of 2 for other dimensions, notes and rebar.
  - $\text{Ø} + t = 6"$  when  $H$  is 8' or less  
 $8"$  when  $H$  is greater than 8'



DETAIL 3

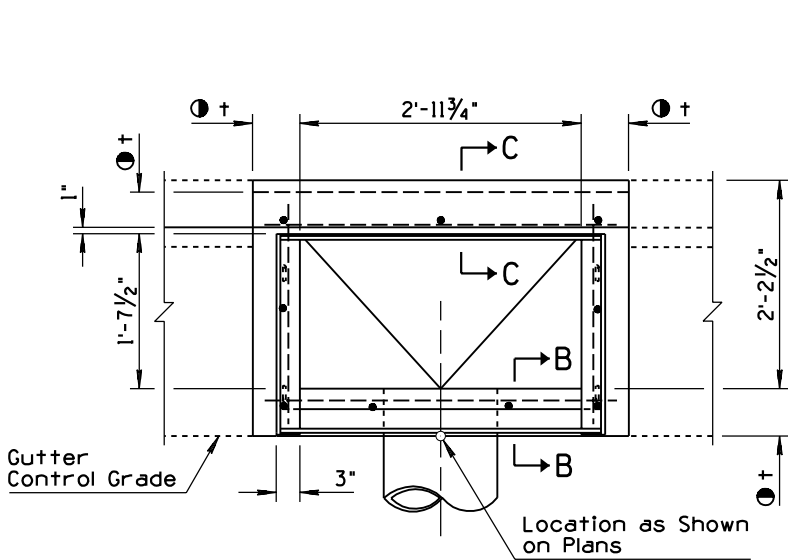


DETAIL 4

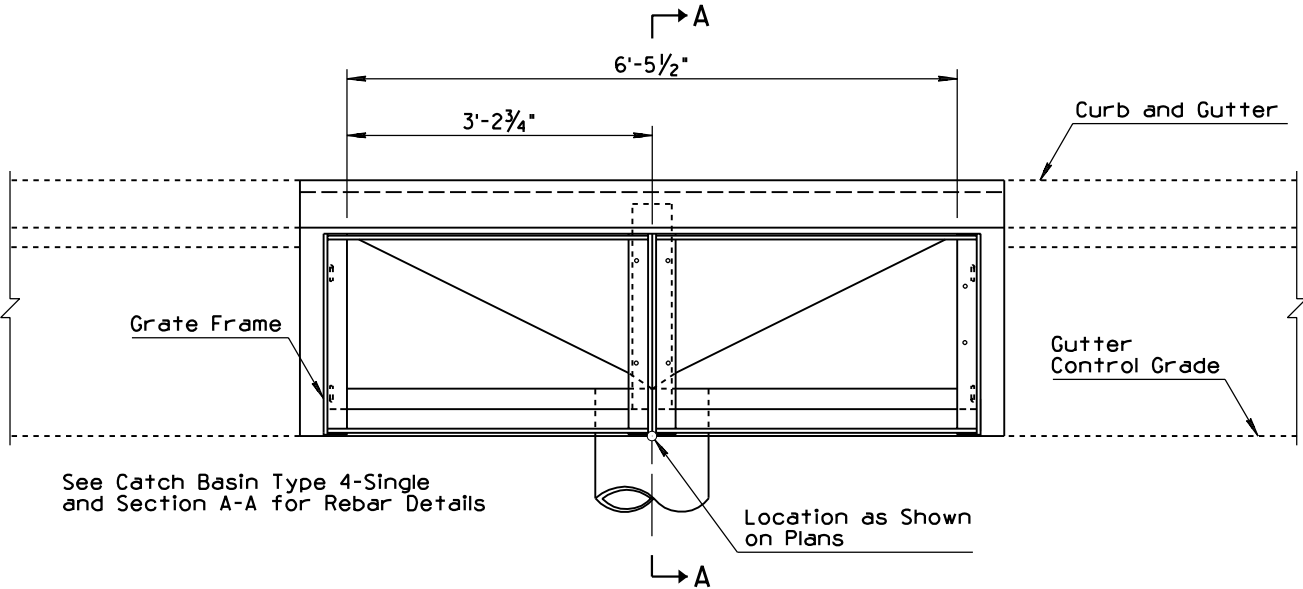
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN TYPE 3	DRAWING NO. C-15.20 Sheet 2 of 3



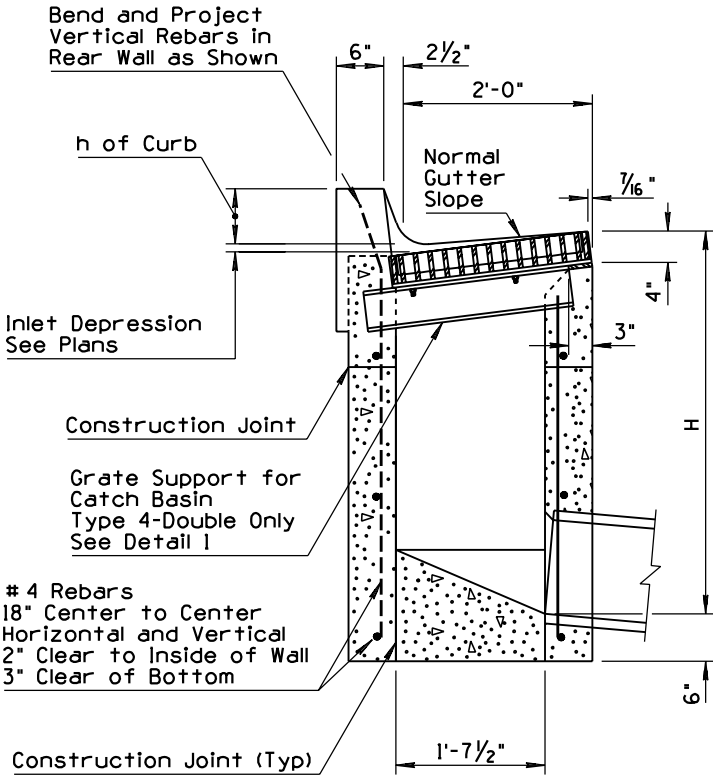
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STANDARD FOR NEW FRAME	PNB	5/97
2			
3			
4			



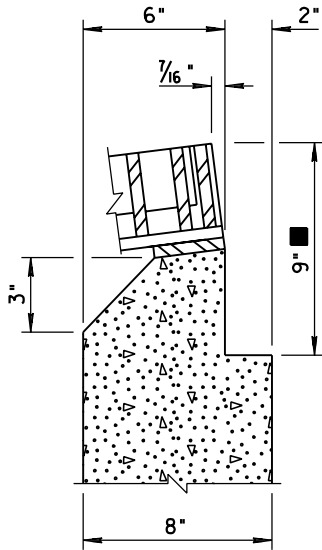
PLAN - CATCH BASIN TYPE 4 - SINGLE



PLAN - CATCH BASIN TYPE 4 - DOUBLE

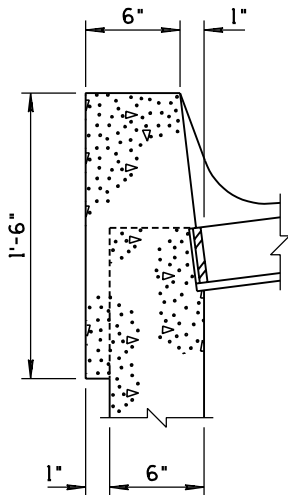


SECTION A-A

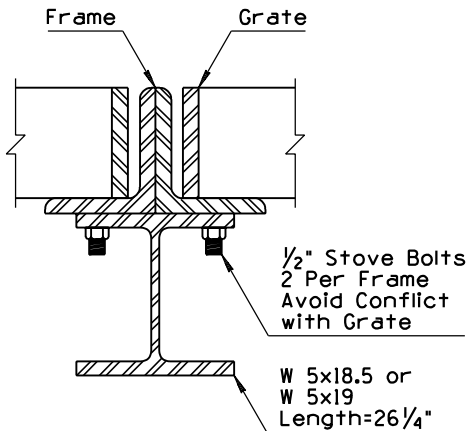


USE THIS SECTION  
WHEN t=8"

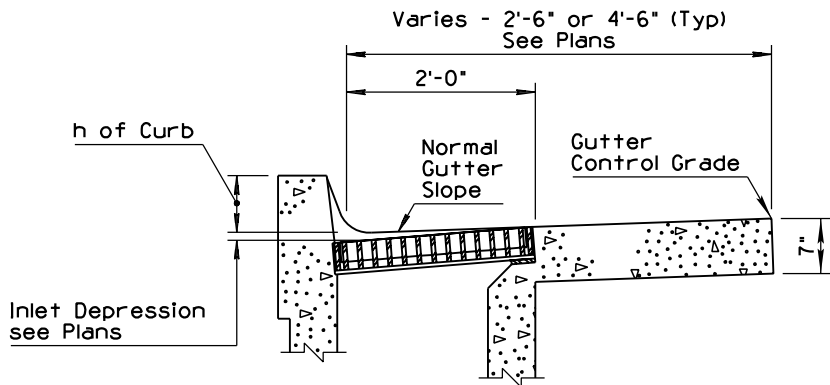
SECTION B-B



SECTION C-C



DETAIL 1



DETAIL FOR WIDE GUTTER  
(SEE STD DWG C-05.10)

### GENERAL NOTES

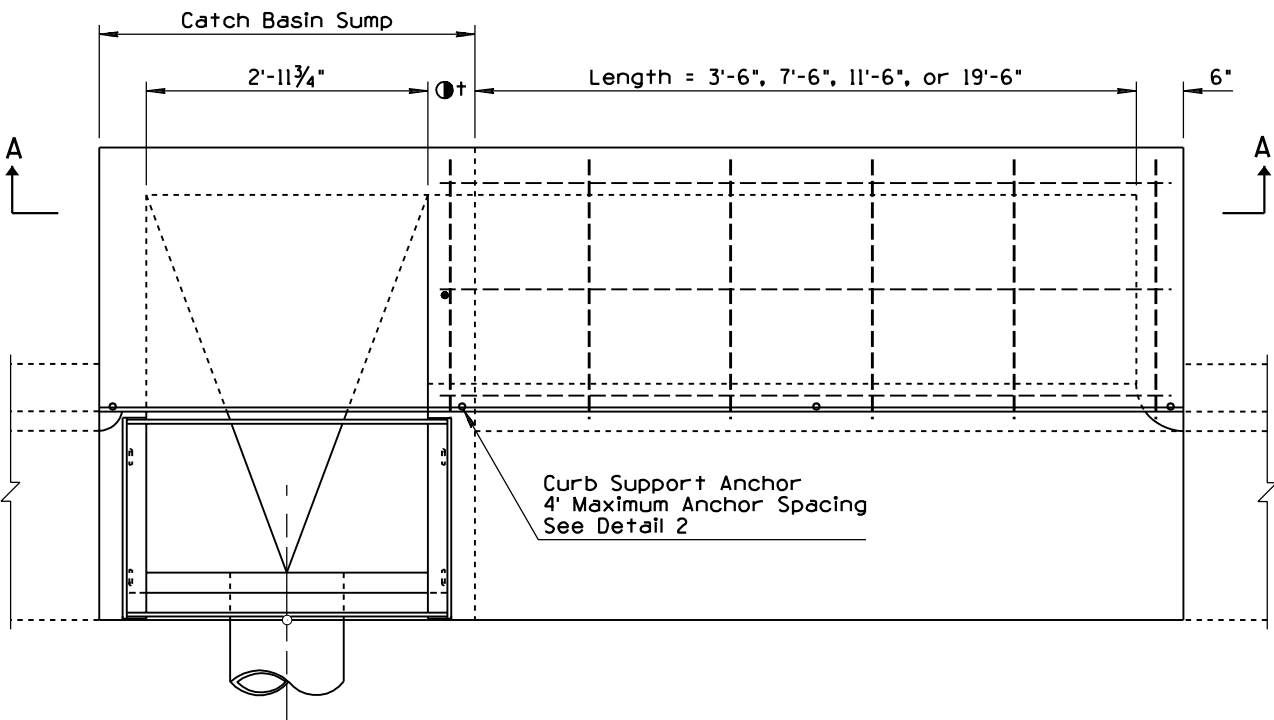
- Catch basin can be used on grade or at roadway sag.
- Pipes can be placed in any wall.
- Floor shall be a wood troweled finish with a minimum 4:l slope along the axis of the pipe toward the pipe.
- Curb over catch basin shall not be constructed until catch basin concrete has set for a minimum of 24 hours.
- Catch basin can be used with curb and gutter (as shown) or without.
- See Std Dwg C-15.50 for grate and frame details and opening areas.
- Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
- All rebar shall be ASTM A36.
- Grate, frame and beam shall be given one shop coat of Number 1 paint.
- All concrete shall be Class B.
- Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
- Silicone sealant shall be placed between the grate frame and PCCP, recessed 1/4" from the pavement surface.
- See Detail 2 for catch basin with wide gutter.
- t

=
6" when H is 8' or less.  
8" when H is greater than 8'.  
See Section B-B.
- 9" when pavement is AC.  
Match pavement thickness  
when pavement is PCCP.

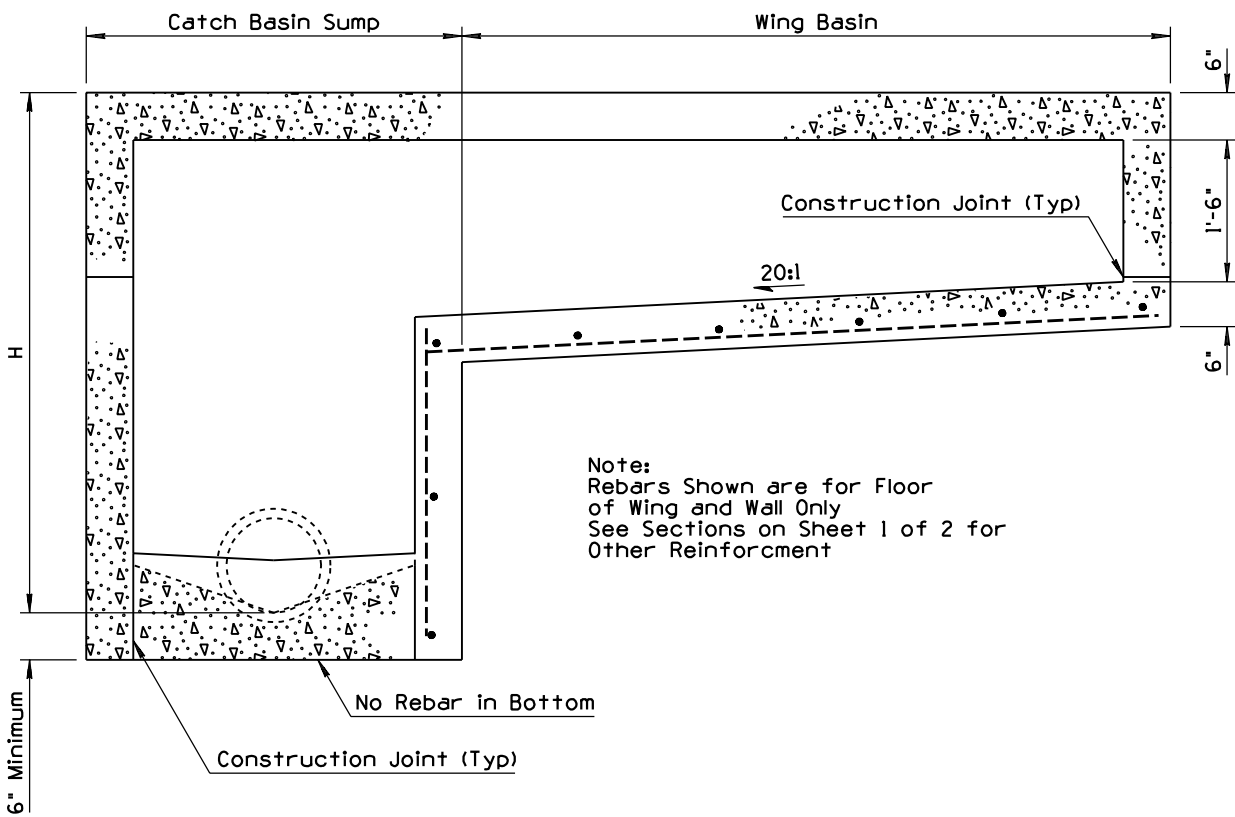
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① CATCH BASIN TYPE 4	DRAWING NO. C-15.30



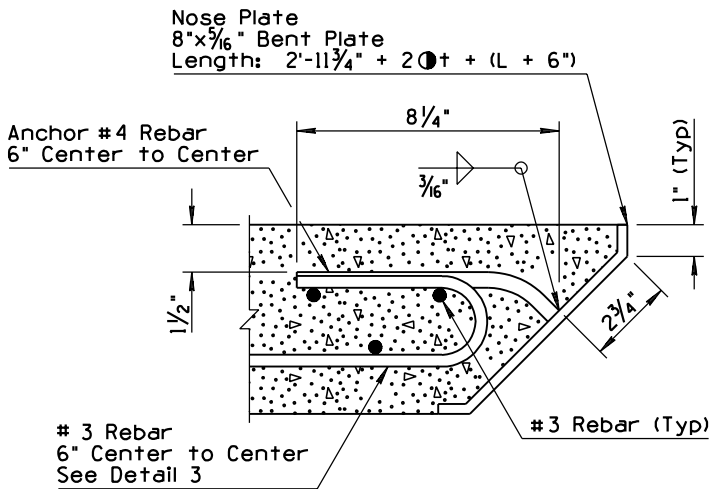
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



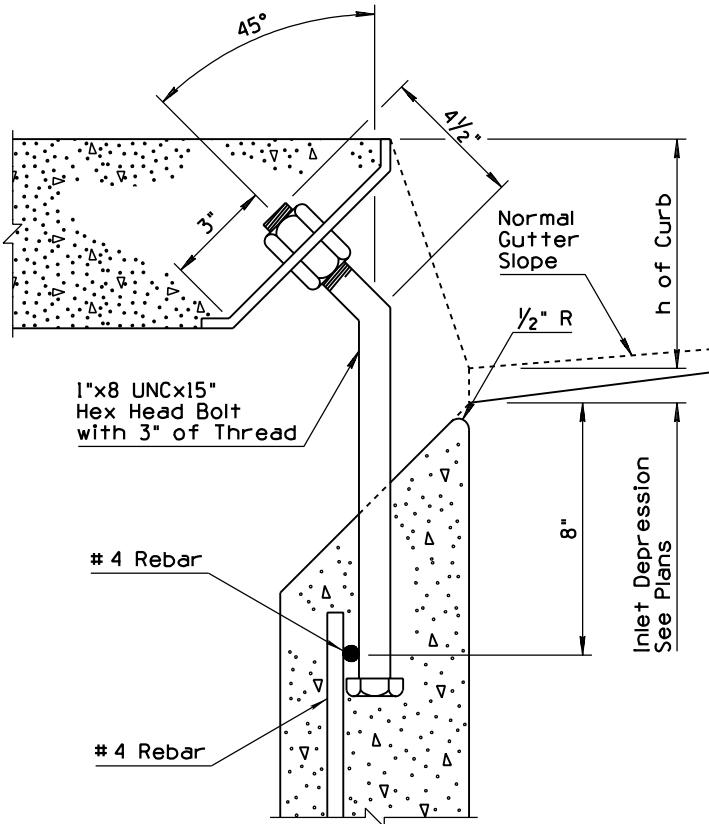
PLAN



SECTION A-A  
USE THIS SECTION WHEN H IS GREATER THAN 5'

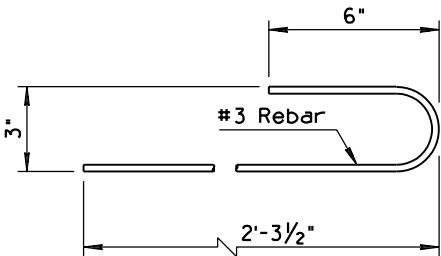


DETAIL 1

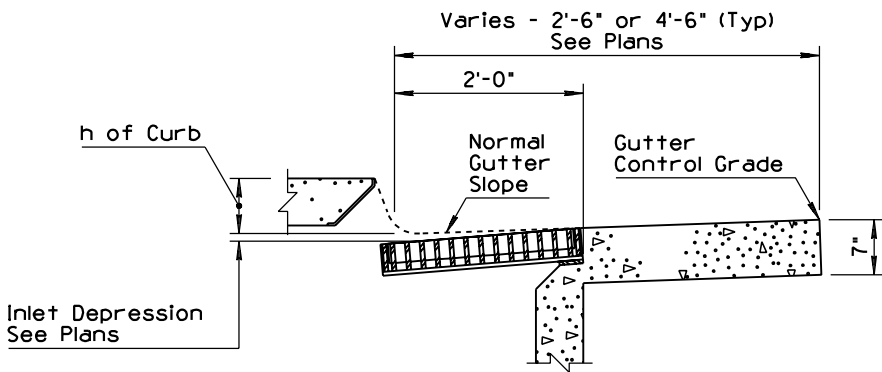


DETAIL 2  
CURB SUPPORT ANCHOR

- GENERAL NOTES
- See Sheet 1 of 2 for other dimensions, notes and rebar.
  - $\varnothing + = 6"$  when H is 8' or less  
8" when H is greater than 8'



DETAIL 3



DETAIL 4

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/97
APPROVED FOR DISTRIBUTION <i>Julia Brown</i>	CATCH BASIN TYPE 5	DRAWING NO. C-15.40 Sheet 2 of 2



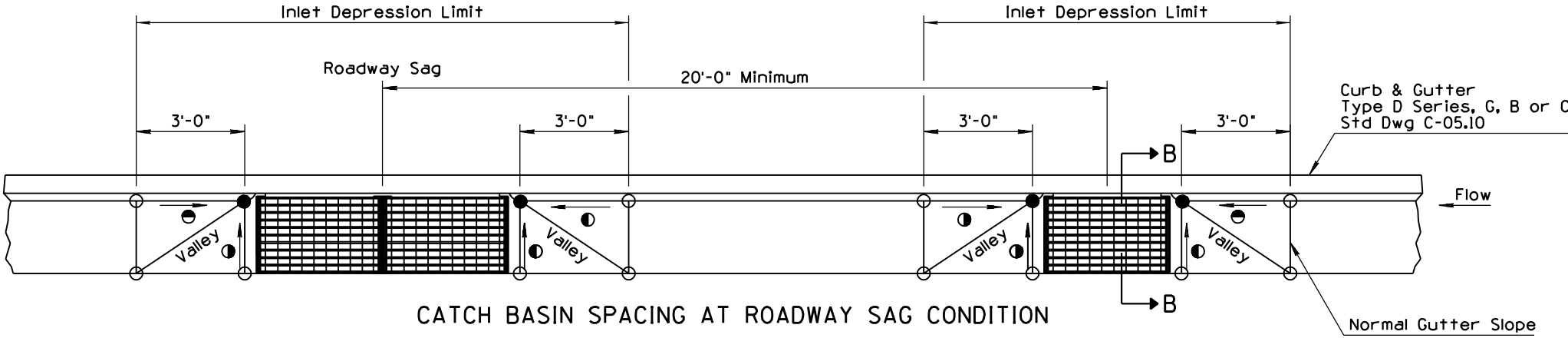
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

GENERAL NOTES

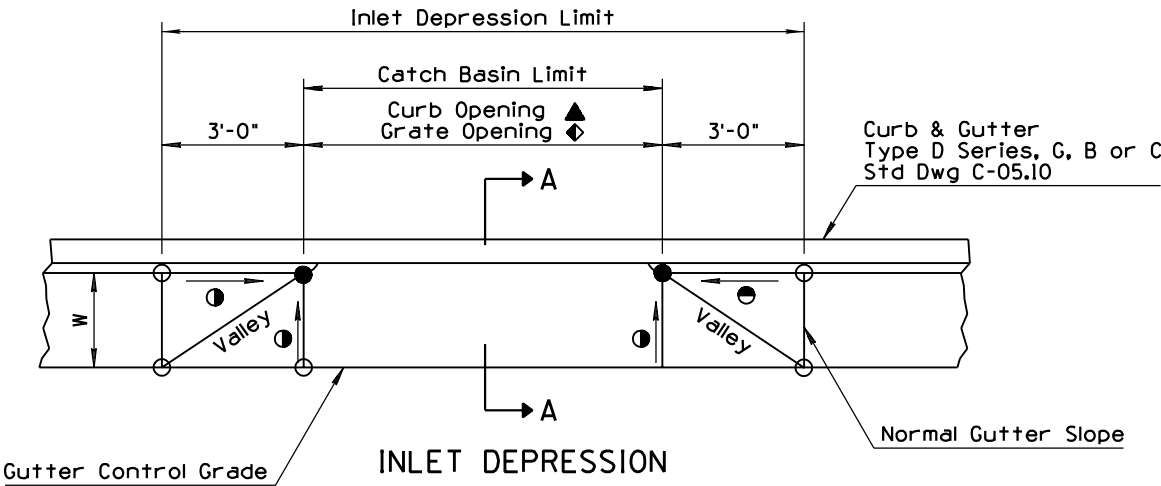
1. No inlet depression shall extend into a traffic lane.
2. Maximum combined inlet and gutter depression is 3". See Section A-A.
3. Maximum distance along curb between catch basins where full gutter depression is used is 10'.
4. See Std Dwg C-15.80 for aprons used with Std Dwg C-15.80 Catch Basin.

LEGEND

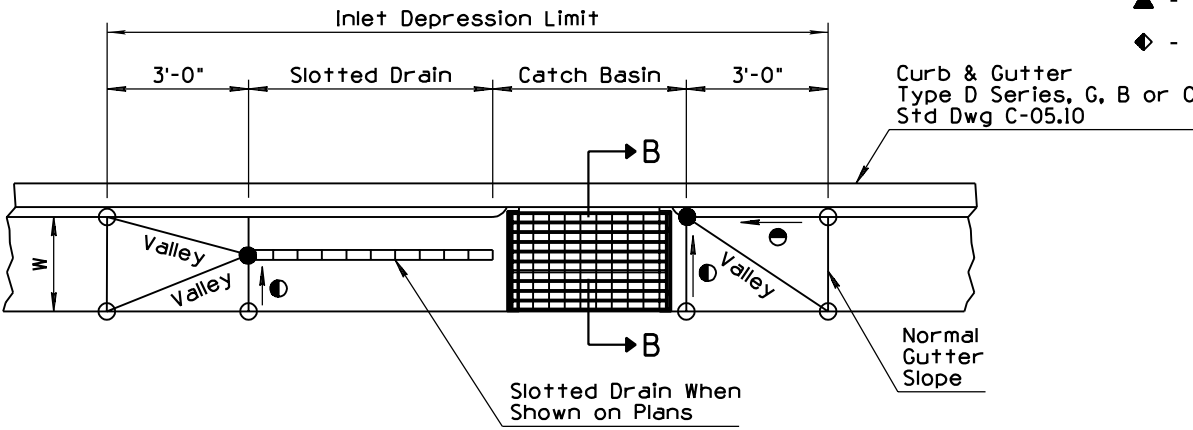
- - Normal pavement or gutter flow line elevation.
- - Depressed elevation.
- ⬇ - Straight grade with downward slope.
- W - Normal gutter width per Std Dwg C-05.10.
- ▲ - For Types 1, 3, & 5 Catch Basin.
- ◆ - For Type 4 Catch Basin & Std Dwg C-15.91.



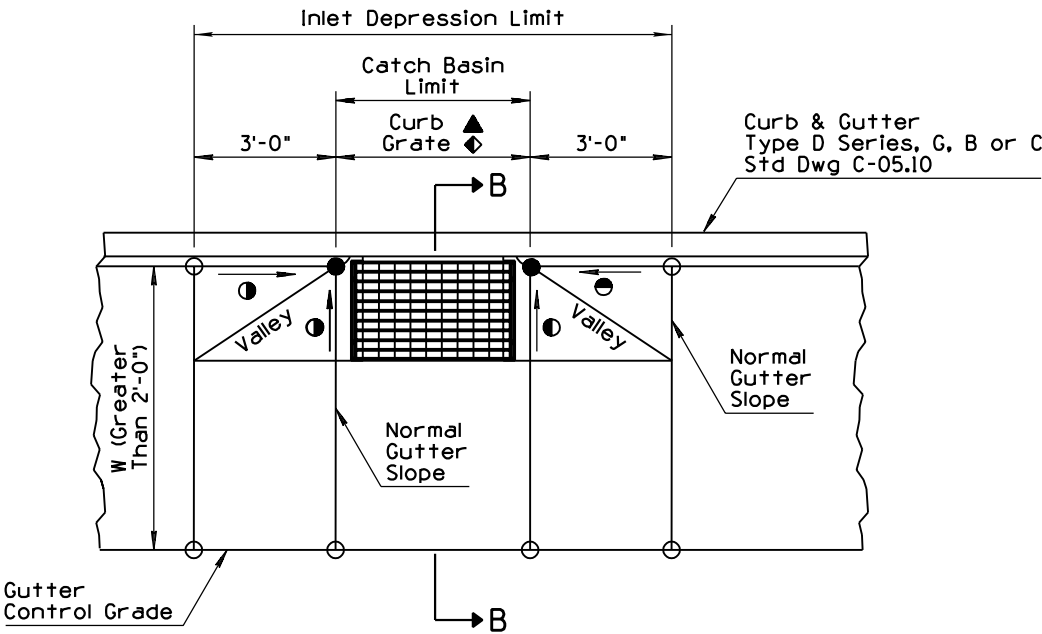
CATCH BASIN SPACING AT ROADWAY SAG CONDITION



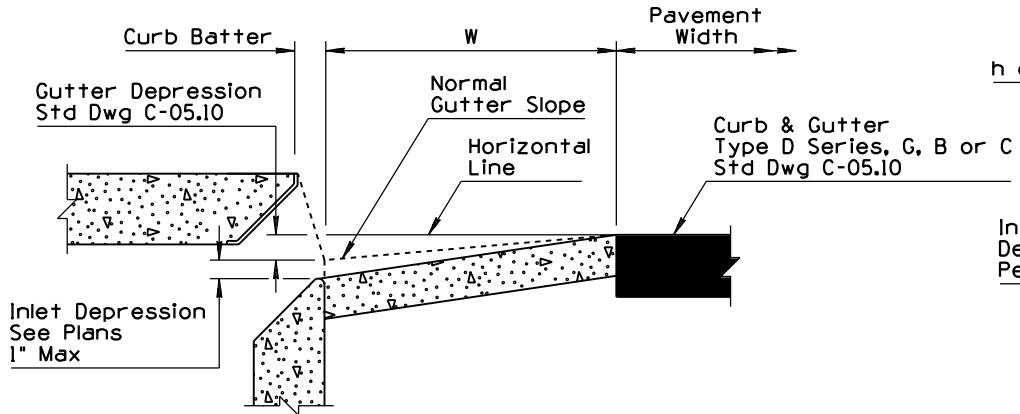
INLET DEPRESSION



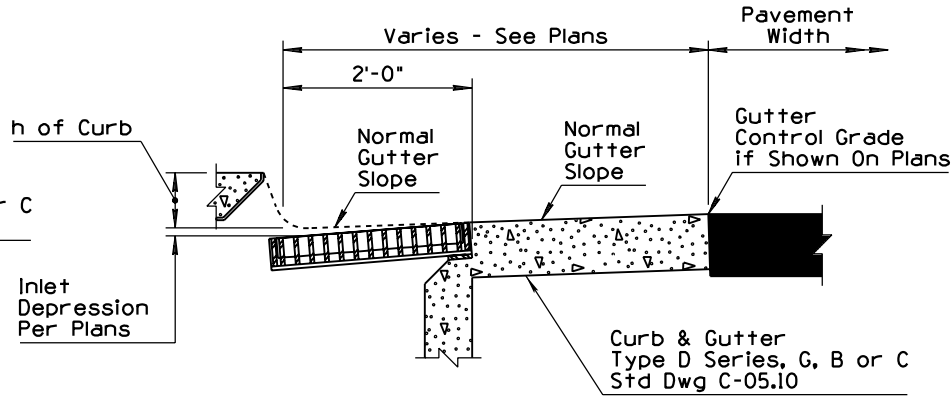
INLET DEPRESSION  
CATCH BASIN WITH SLOTTED DRAIN



INLET DEPRESSION  
CATCH BASIN WITH WIDE GUTTER



SECTION A-A  
(Type D Curb & Gutter Shown)



SECTION B-B  
(Type D Curb & Gutter Shown)

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MISCELLANEOUS DETAILS	DRAWING NO. C-15.70 Sheet 1 of 2

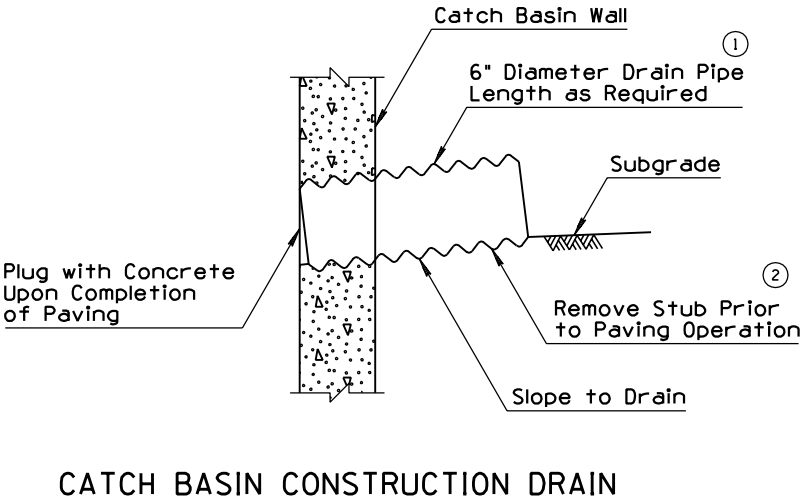
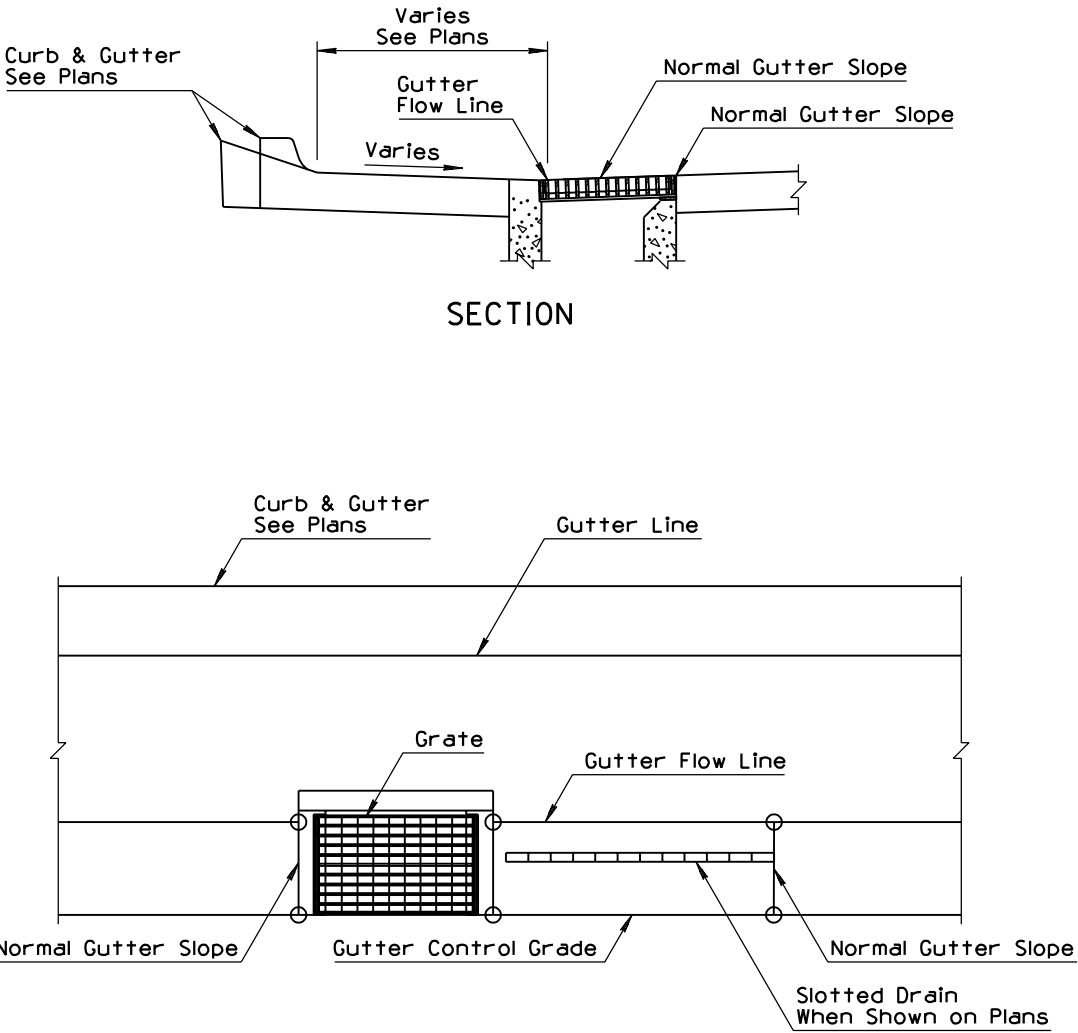
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REMOVED CMP DESIGNATION	RLF	9/04
2	ADDED NOTE	RLF	9/04
3			
4			

GENERAL NOTES

1. Construction drain may be deleted at the option of the Engineer.

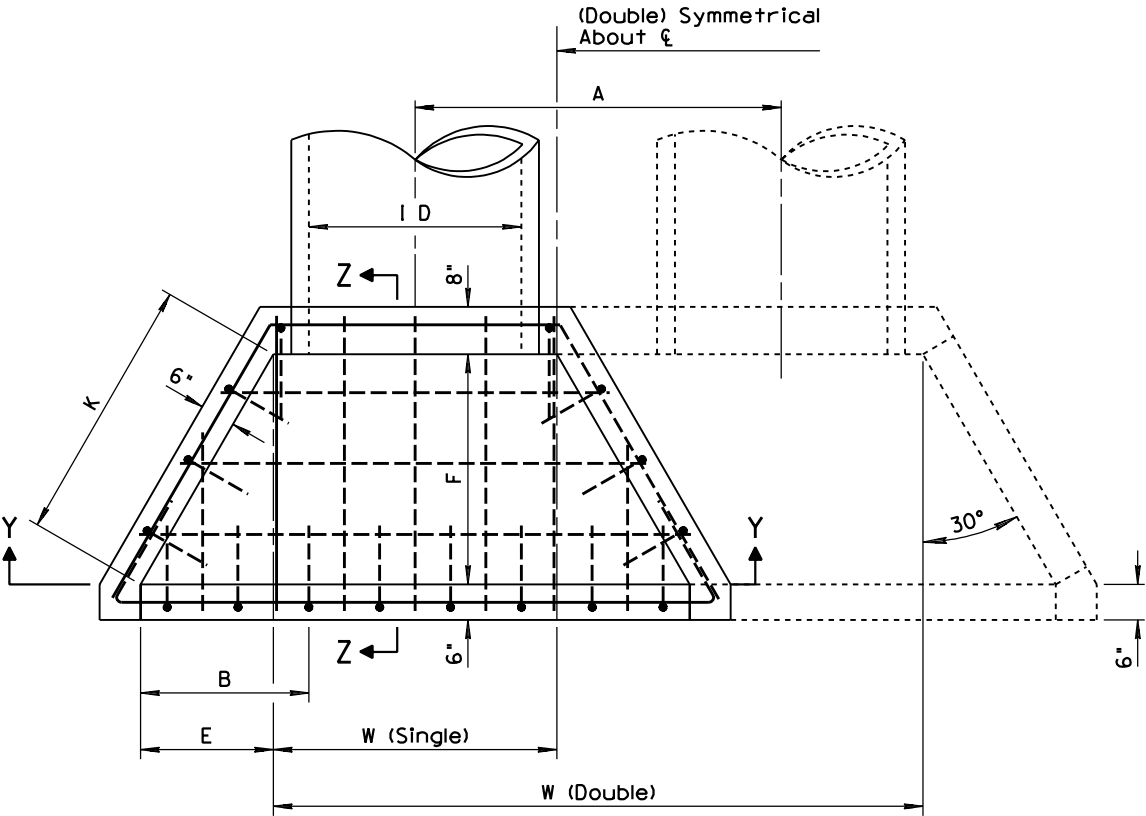
LEGEND

○ - Normal pavement or gutter flow line elevation.

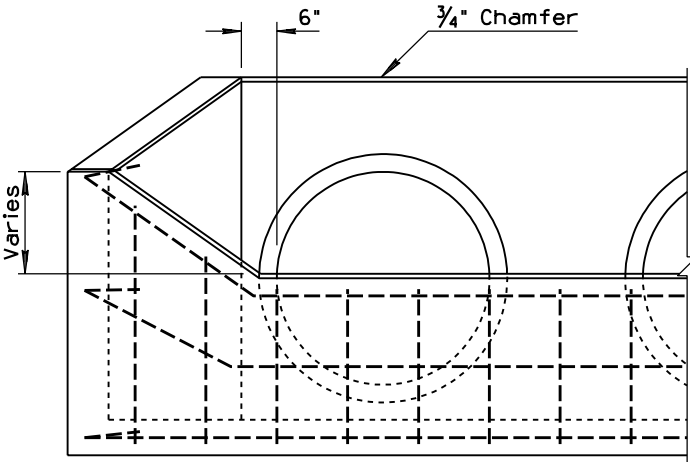


APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MISCELLANEOUS DETAILS	DRAWING NO. C-15.70 Sheet 2 of 2

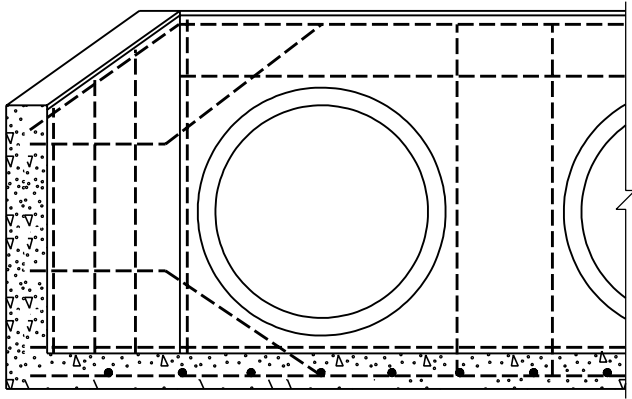
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
4			



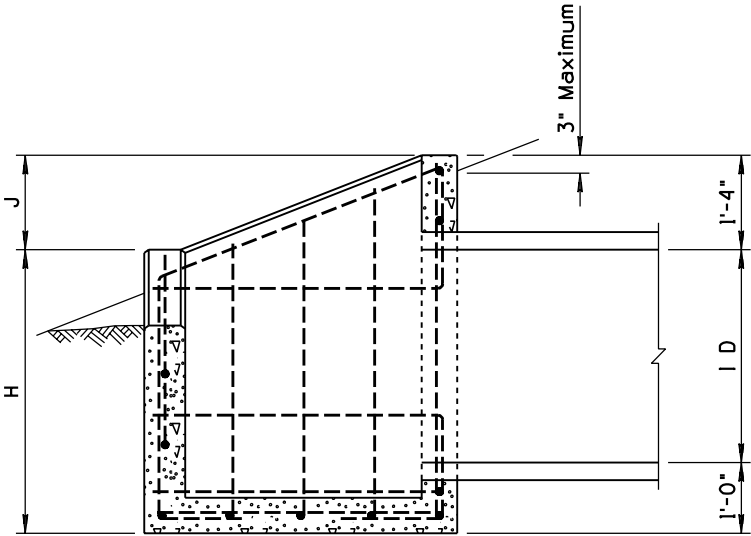
PLAN



ELEVATION



SECTION Y-Y



SECTION Z-Z

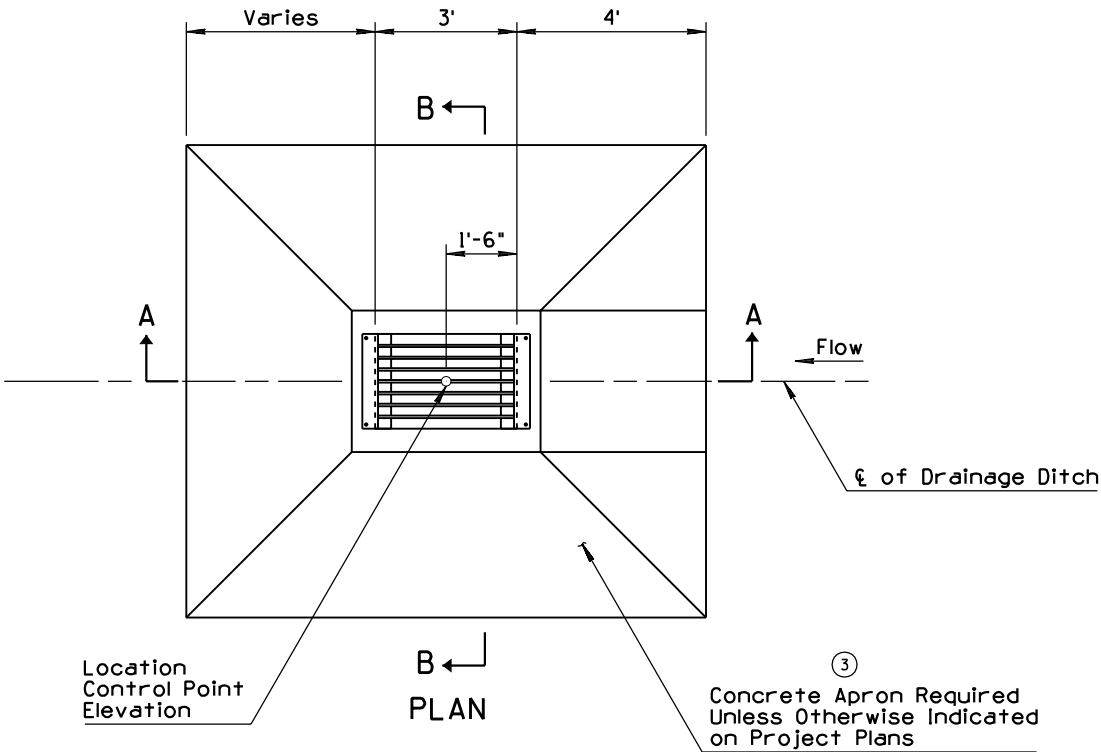
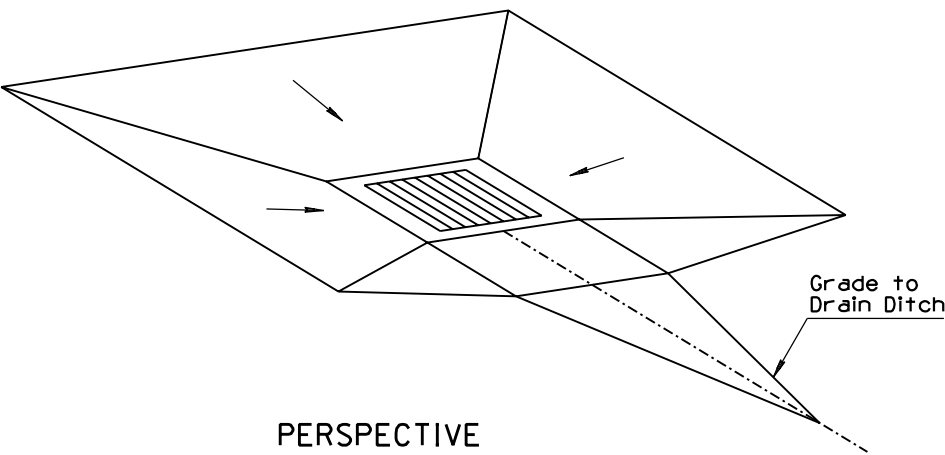
GENERAL NOTES

1. See also Std Dwg C-13.10.
2. High point of headwall shall not project more than 3" above slope.
3. All concrete shall be Class B.
4. All rebar shall be #4, 1'-0" center to center, with 3" minimum clear to inside of walls and floor.

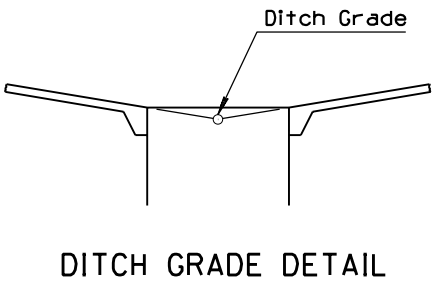
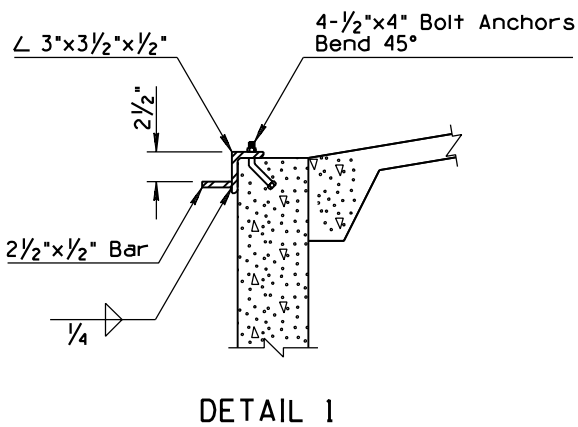
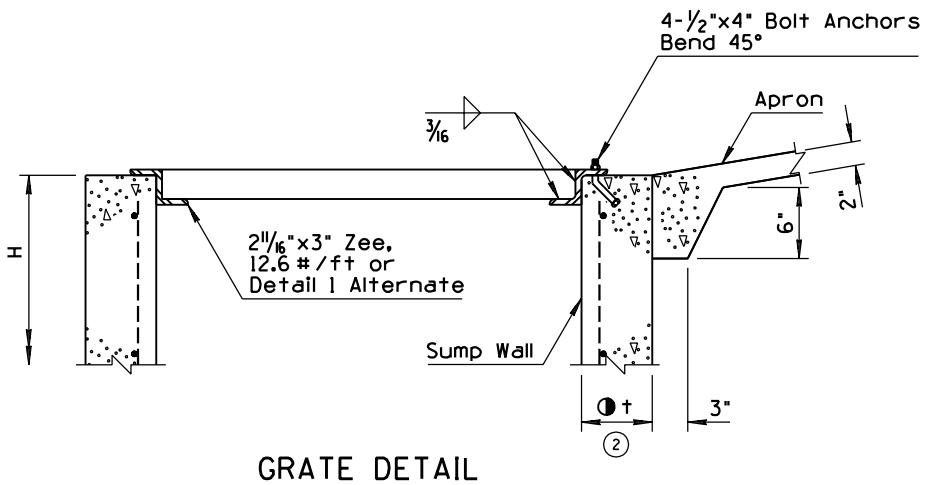
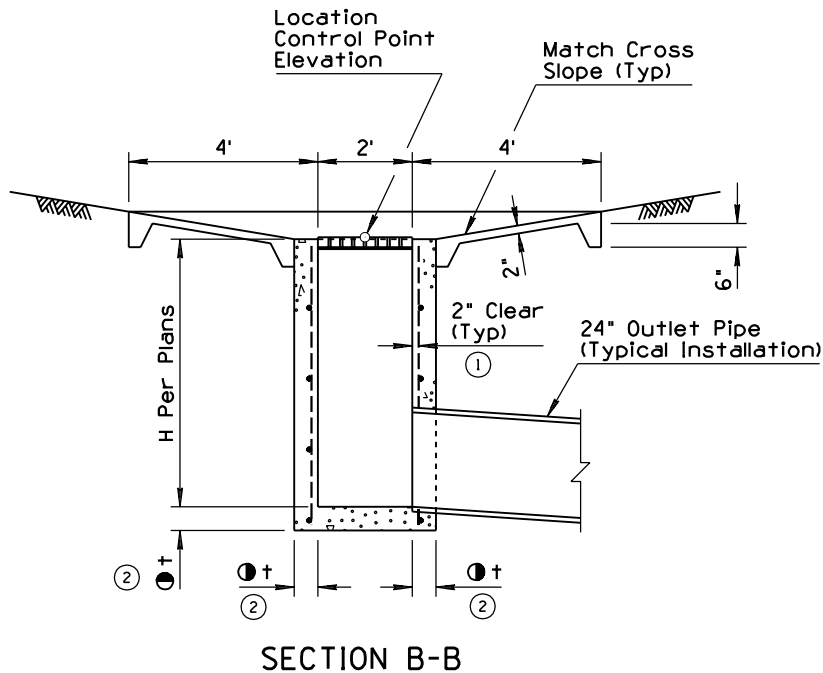
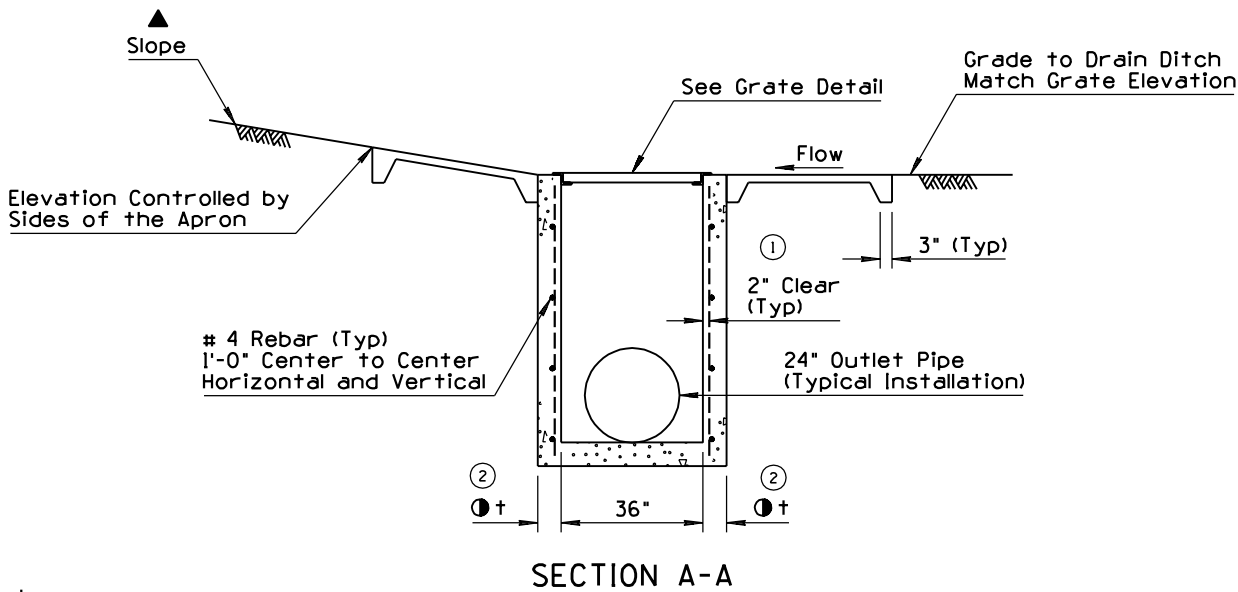
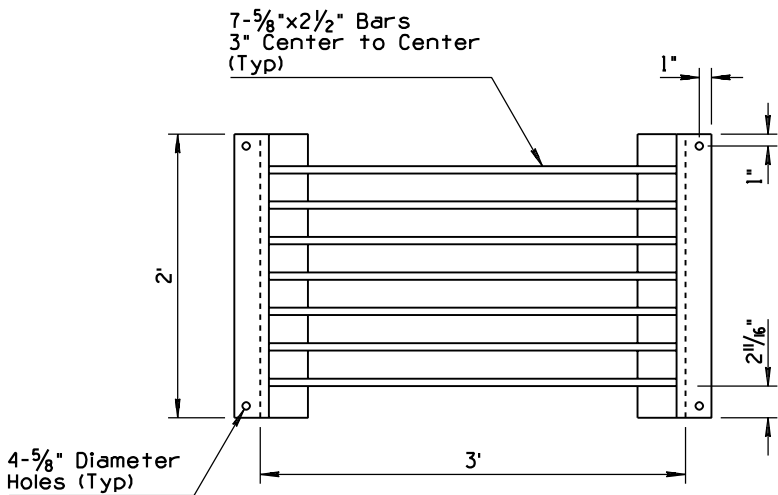
PIPE ID (In)	DIMENSIONS (F+-In)									QUANTITIES (Based on CMP Installation)			
	W		A	B	E	F	H	J	K	Concrete (CY)		Reinforcing Steel (Lbs)	
	Single	Double								Single	Double	Single	Double
18	2 -6	5 -2	2 -8	1 -3	0-9	1 -3 <sup>5</sup> / <sub>8</sub>	3 -1	0-9	1 -6	0.7	1.1	75	105
24	3 -0	6 -6	3 -6	1 -7 <sup>1</sup> / <sub>2</sub>	1 -1 <sup>1</sup> / <sub>2</sub>	1 -11 <sup>3</sup> / <sub>8</sub>	3 -5	0-11	2 -3	1.0	1.6	90	135
30	3 -6	7 -10	4 -4	2 -0	1 -6	2 -7 <sup>1</sup> / <sub>4</sub>	3 -9	1 -1	3 -0	1.5	2.3	110	165
36	4 -0	9 -2	5 -2	2 -4 <sup>1</sup> / <sub>2</sub>	1 -10 <sup>1</sup> / <sub>2</sub>	3 -3	4 -0	1 -4	3 -9	2.0	3.0	145	215
42	4 -6	10 -6	6 -0	2 -9	2 -3	3 -10 <sup>3</sup> / <sub>4</sub>	4 -4	1 -6	4 -6	2.5	3.8	190	280

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>		DRAWING NO. C-15.75

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED CLEAR COVER	RLF	9/04
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3	ADDED CONCRETE REQUIREMENT	RLF	9/04
4			



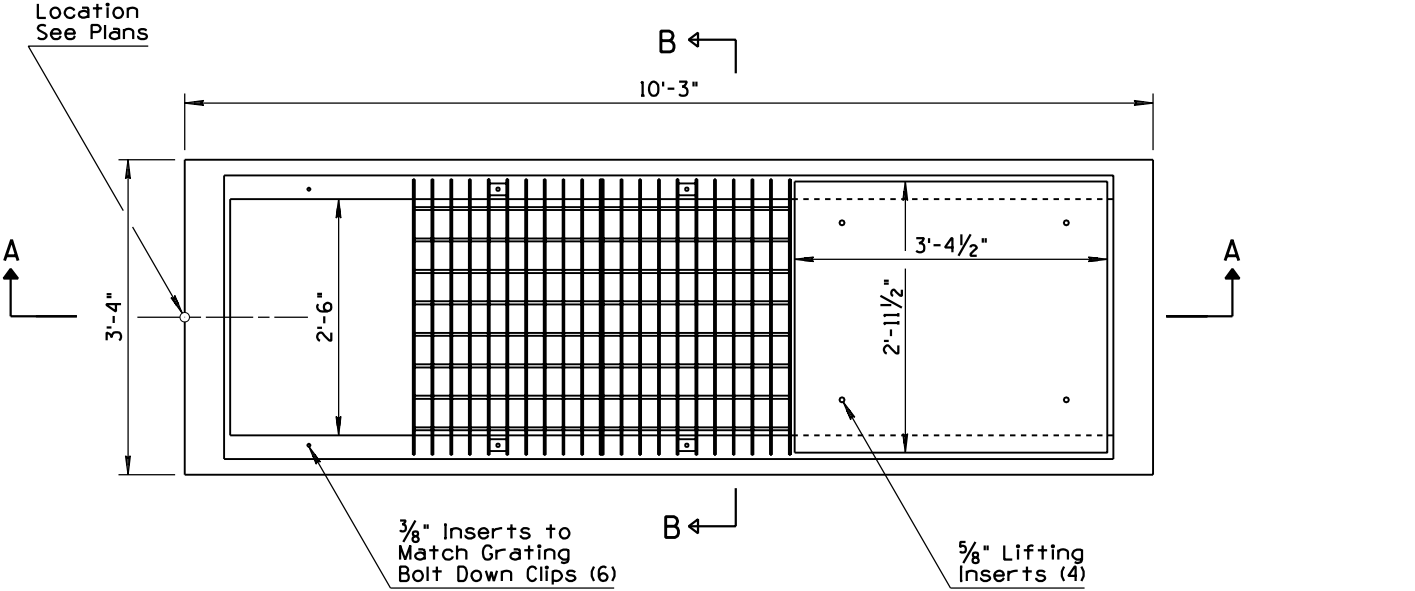
- ### GENERAL NOTES
- All concrete shall be Class B.
  - Grate and frame shall be fabricated of structural steel in accordance with ASTM A36.
  - All welding shall be in accordance with Std Spec 604-3.06.
  - Grate assembly shall be given one shop coat of Number 1 paint.
- ▲ Apron slopes shall match the natural flow line of the ditch. No additional depression will be allowed.
- ② ① + = 6" when H is 8' or less  
8" when H is greater than 8'



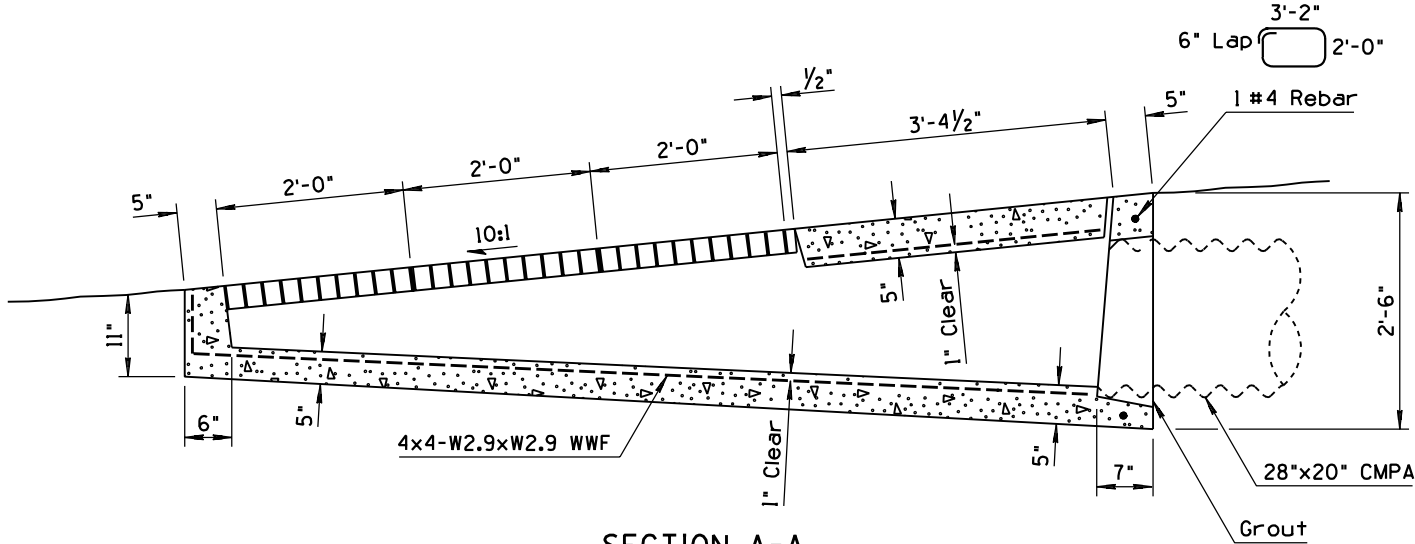
APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN FLUSH	DRAWING NO. C-15.80



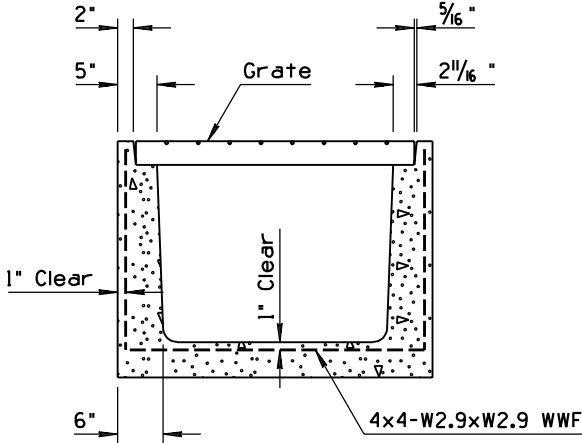
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



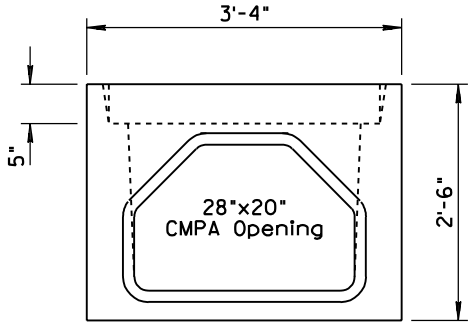
PLAN



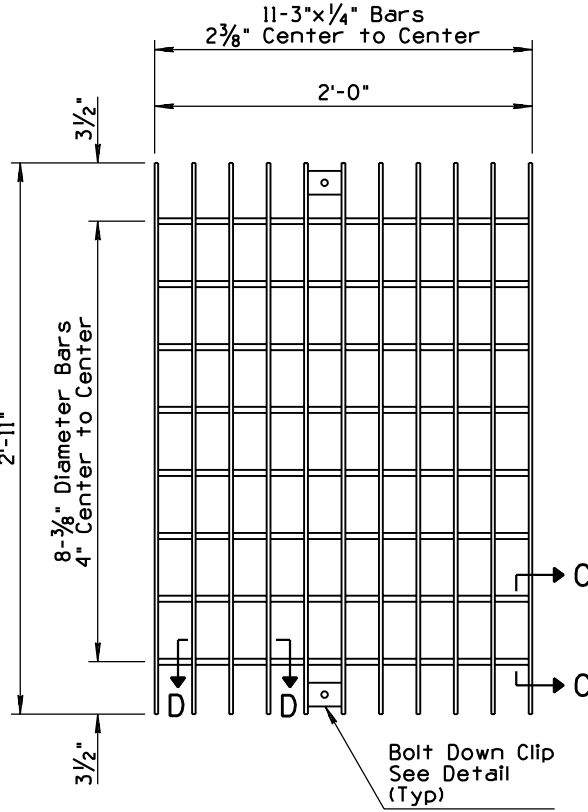
SECTION A-A



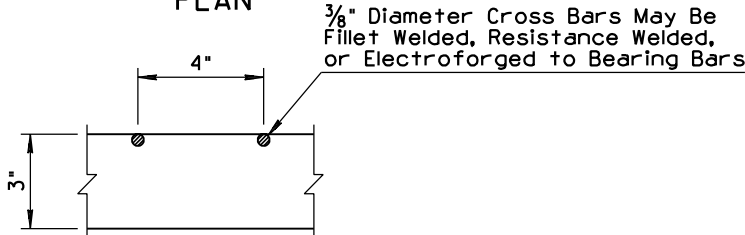
SECTION B-B



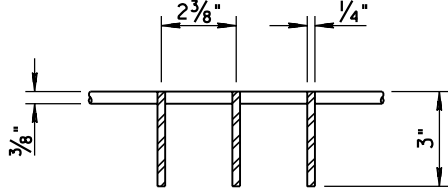
END VIEW



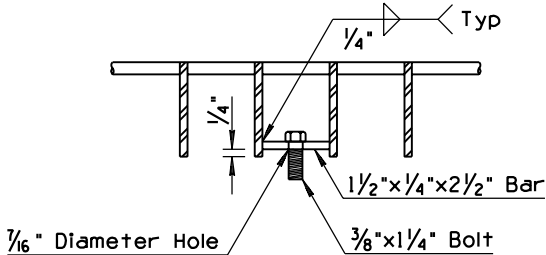
PLAN



SECTION C-C



SECTION D-D



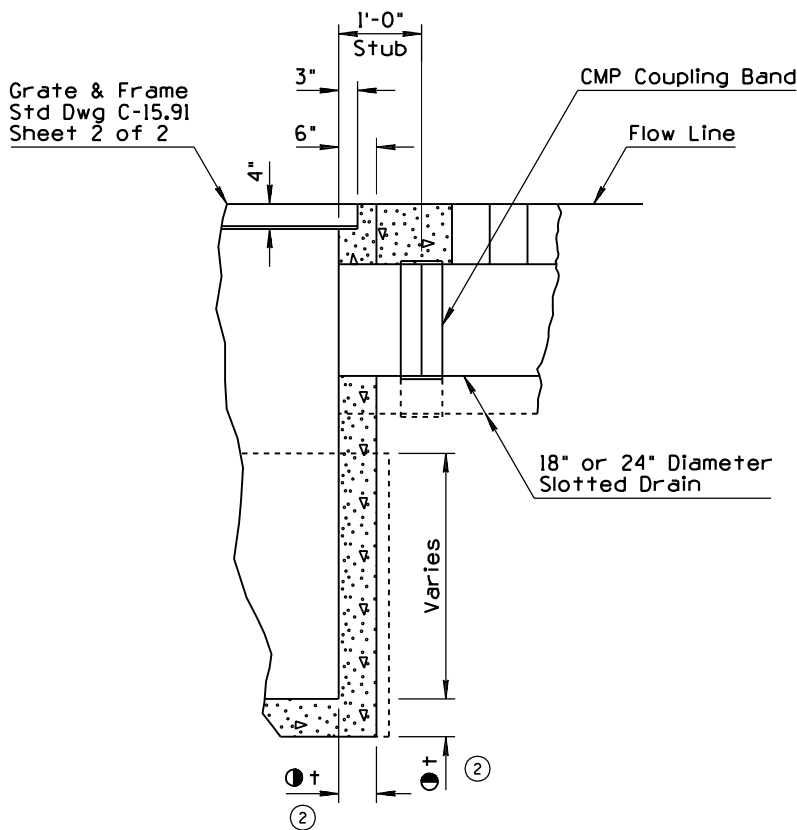
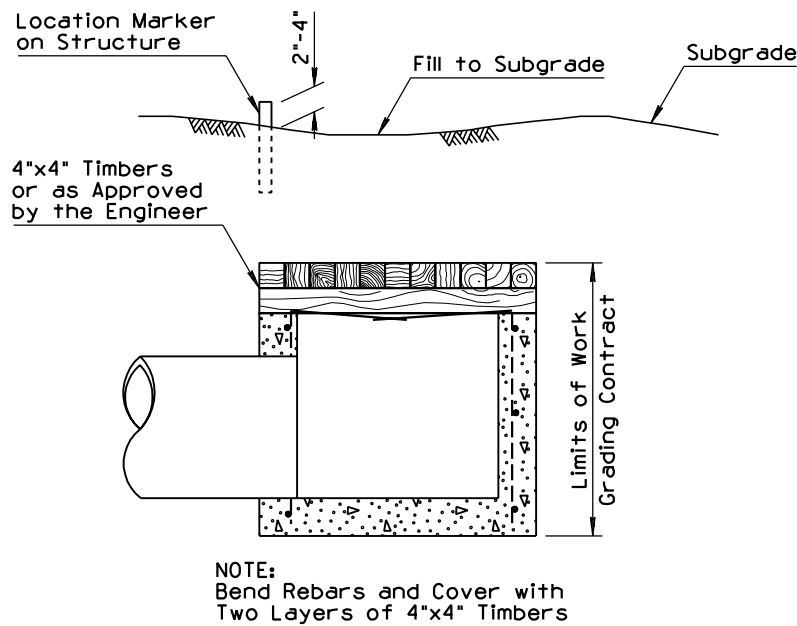
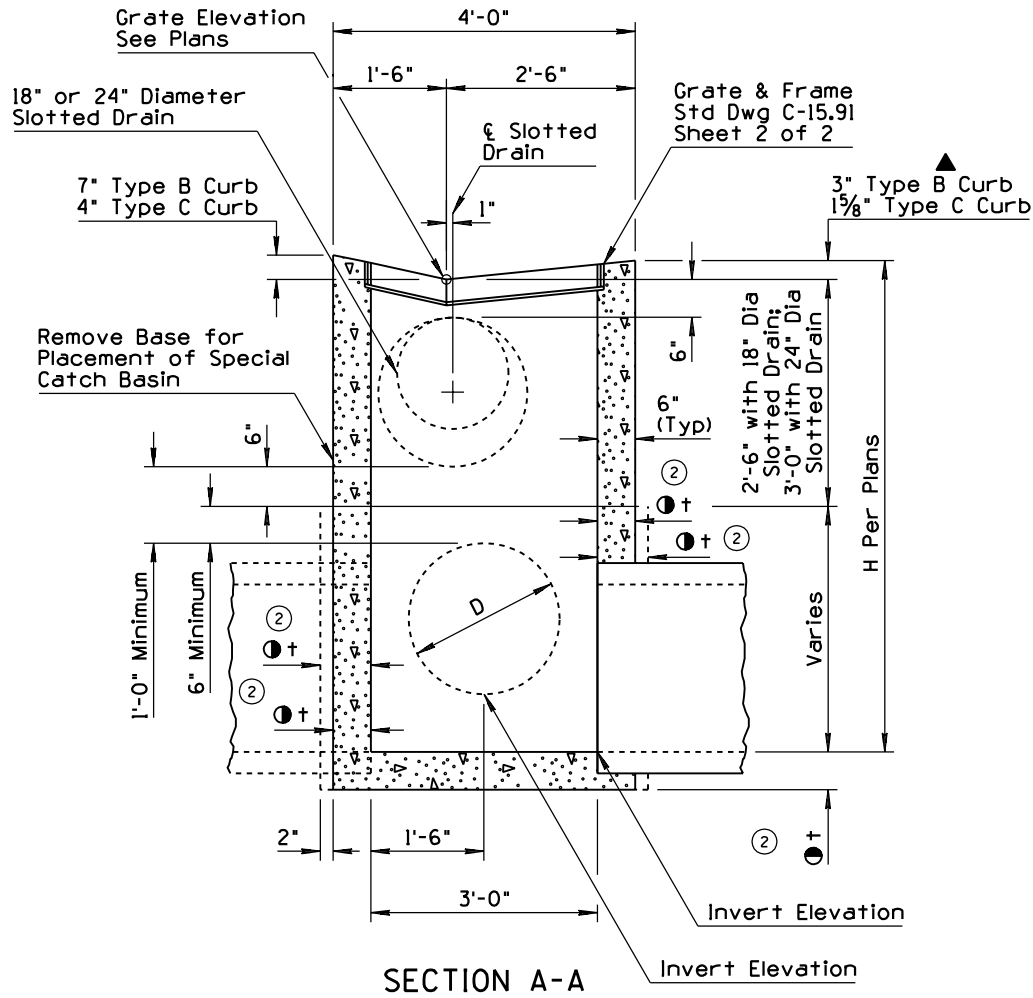
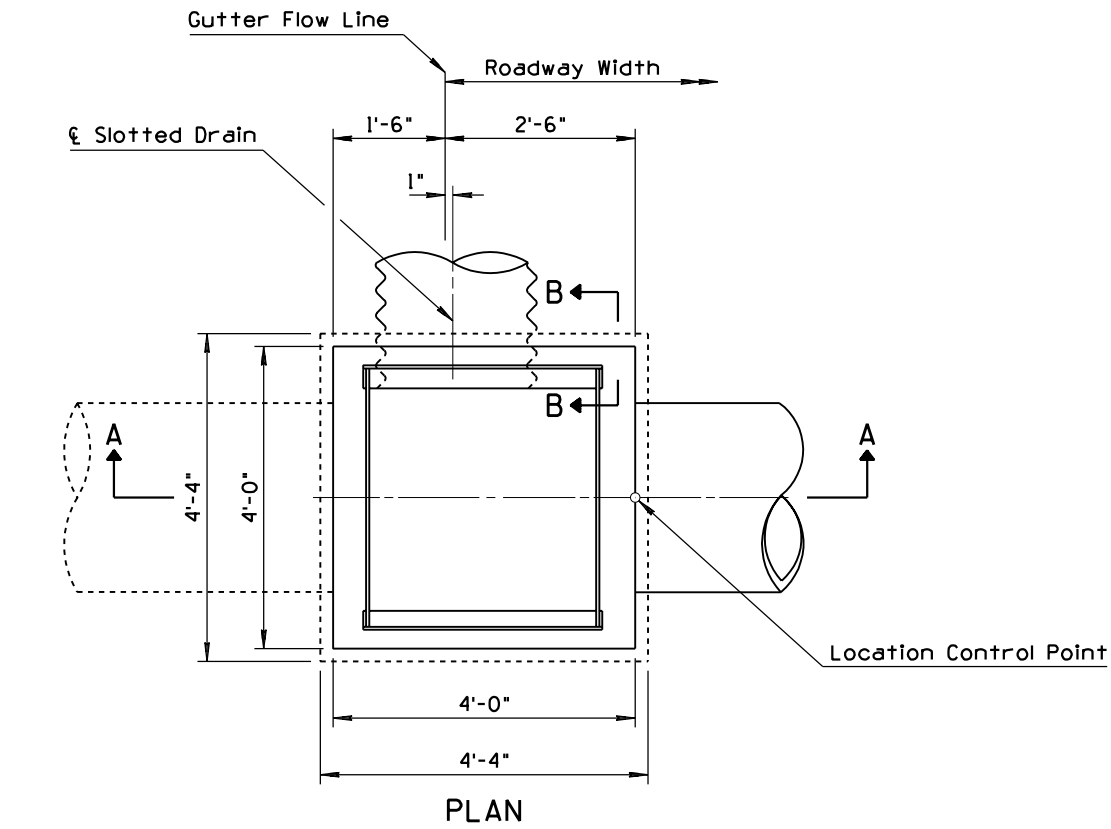
BOLT DOWN CLIP DETAIL

### GENERAL NOTES

- Concrete shall conform to the requirements for Class S Concrete. The minimum strength shall be 4000 psi.
- Grout shall be in accordance with the Std Specs except water content shall be such that the consistency is proper for smooth trowling.
- All welding shall be in accordance with Std Spec 604-3.06.
- The completed grate shall be given one shop coat of Number 1 paint.
- Foundation soil and backfill shall be in accordance with Std Spec 203-5.

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN MEDIAN DIKE PRECAST	DRAWING NO. C-15.90

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED PREVIOUS GENERAL NOTE* 2	RLF	7/01
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3			
4			



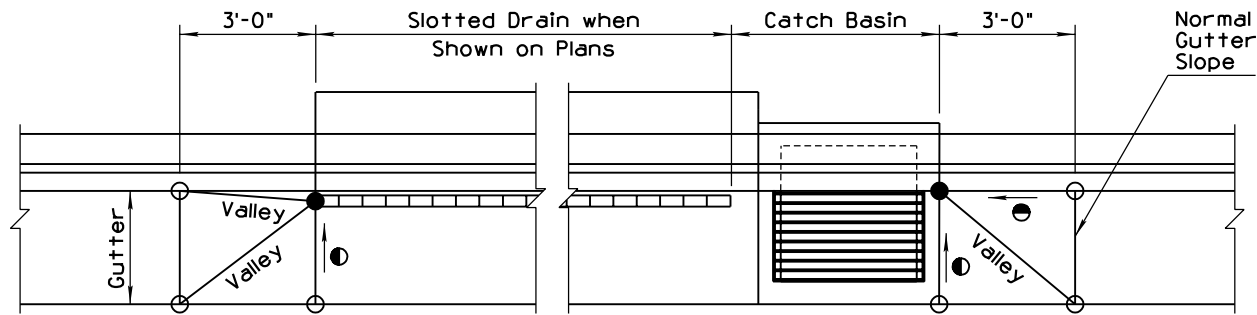
# GENERAL NOTES

- All concrete shall be Class B.
  - All rebar shall have 2" minimum clear cover unless otherwise noted.
  - #4 rebar shall be placed 12" center to center horizontal & vertical in walls.
  - Pipe may be placed in any wall.
  - See Std Dwgs C-13.60 and C-13.65 for more information and dimensions of slotted drains.
- ▲ Includes 1" Inlet Depression
- ② ①+ = 6" when H is 8' or less  
8" when H is greater than 8'

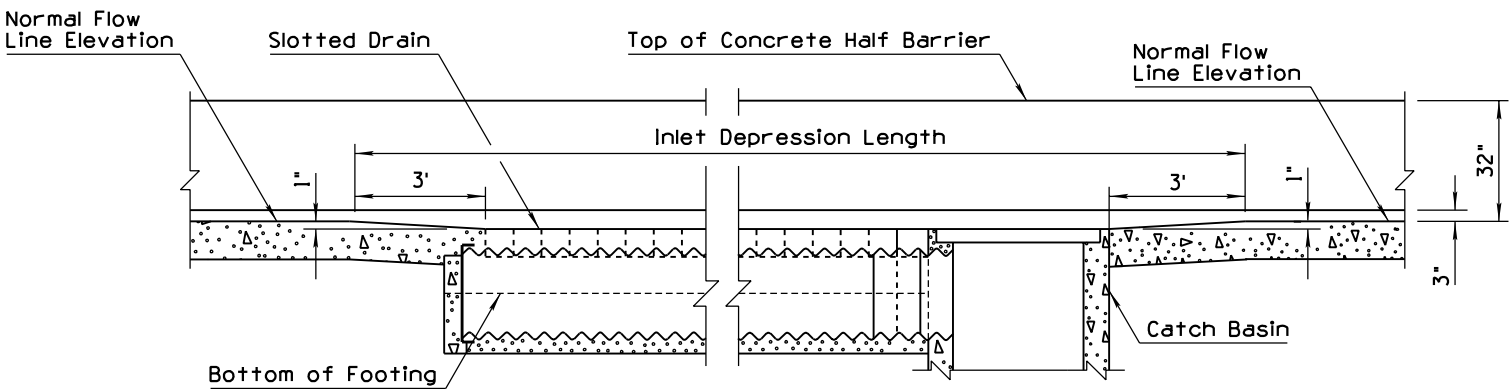
APPROVED FOR DESIGN <i>May Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 7/01
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FREeway CATCH BASIN DETAILS	DRAWING NO. C-15.91 Sheet 1 of 2



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

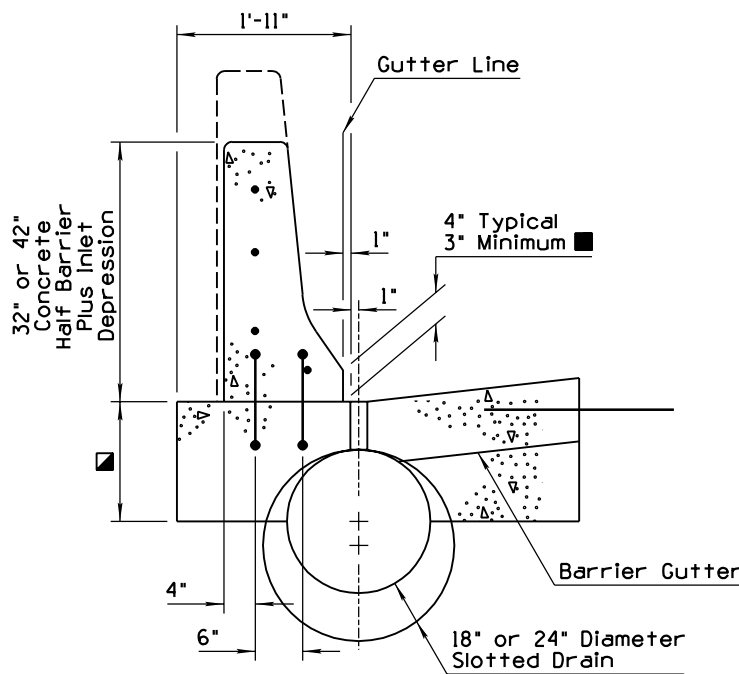


PLAN

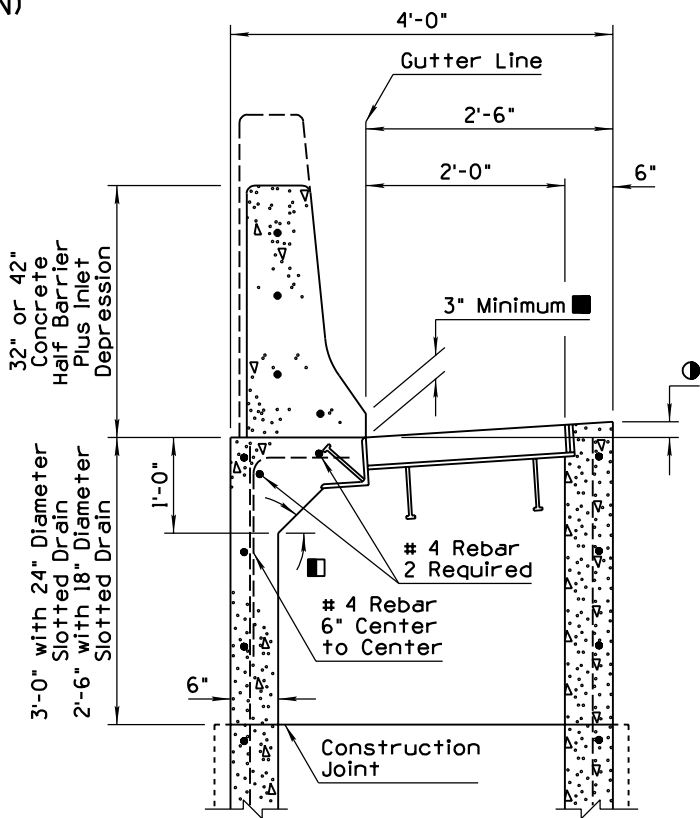


ELEVATION

INLET DEPRESSION  
CONCRETE HALF BARRIER AND CATCH BASIN WITH SLOTTED DRAIN  
(18" CMP AND 32" CONCRETE BARRIER SHOWN)



HALF BARRIER INSTALLATION  
AT SLOTTED DRAIN LOCATIONS



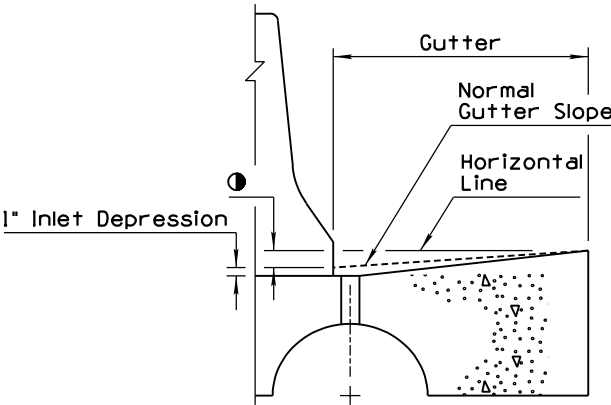
CATCH BASIN WITH HALF BARRIER

GENERAL NOTES

- See Std Dwg C-15.91 for dimensions, sizes and details not shown for construction of catch basin.
  - See Std Dwgs C-10.52 and C-10.53 for dimensions, sizes and details not shown for construction of barrier.
  - See Std Dwg C-13.60 for dimensions, sizes and details not shown for construction of slotted drain.
  - Only longitudinal reinforcing steel shall be placed in Half Barrier within 1' of catch basin frame. S-shape bars shall not be placed in the rear wall of the catch basin.
- 1'-3" for 18" diameter slotted drain  
1'-6" for 24" diameter slotted drain
  - Angle varies, approximately 45°
  - Varies in increased height over catch basin and slotted drain inlet depression
  - Depressed elevation.
  - Normal pavement or gutter flow line elevation.
  - Match adjacent gutter depression. Additional inlet depression as specified
  - Straight grade with downward slope.

NOTE TO DESIGNERS

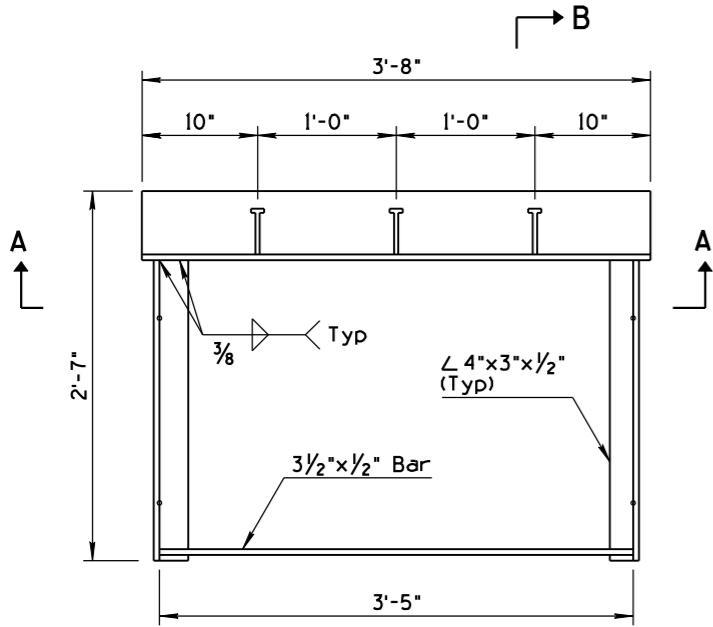
Grate design shown is not suitable for locations subject to bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.



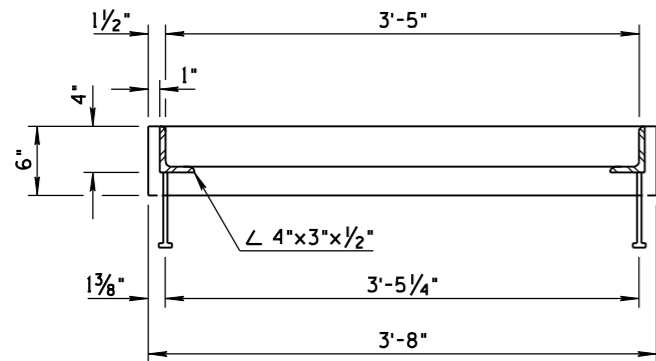
GUTTER DEPRESSION  
AT SLOTTED DRAIN LOCATIONS

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. C-15.92 Sheet 1 of 2

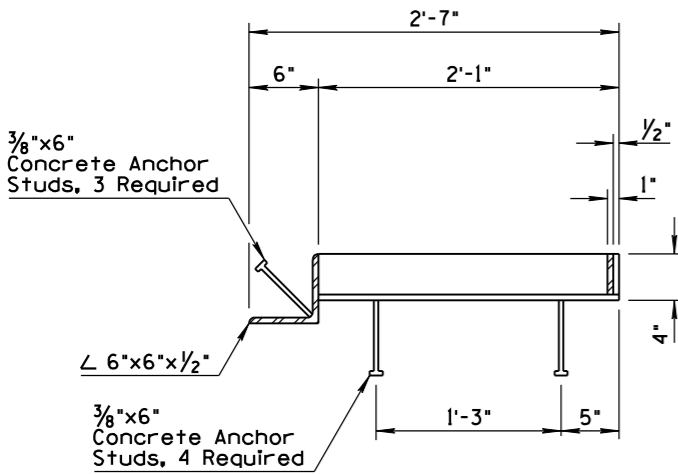
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD DRAWING	RLF	9/04
2	DELETED GENERAL NOTE	RLF	4/06
3	REVISED WELD SIZE NOTATIONS ON DRAWING	RLF	4/06
4			



PLAN

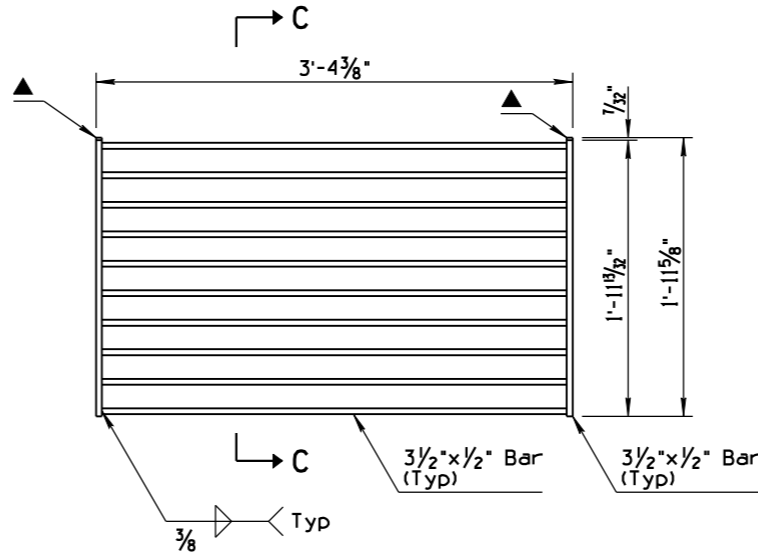


SECTION A-A

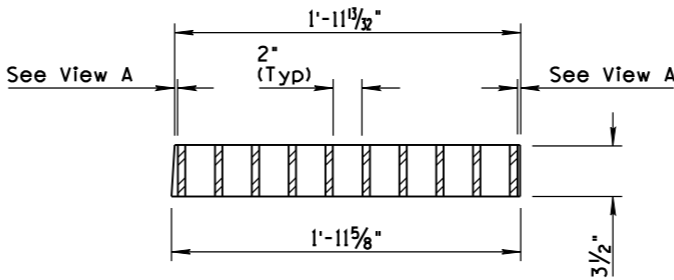


SECTION B-B

FRAME

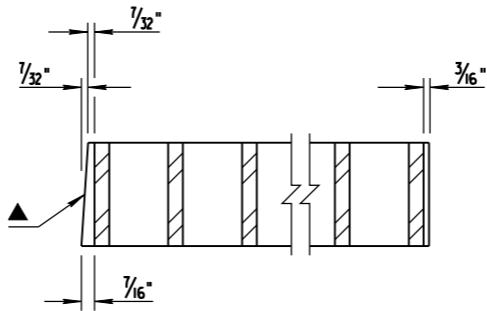


PLAN



SECTION C-C

GRATE



View A

## GENERAL NOTES

1. All welding shall be in accordance with Std Spec 604-3.06.
2. Grate opening for grate shown is 4.75 Sq Ft.

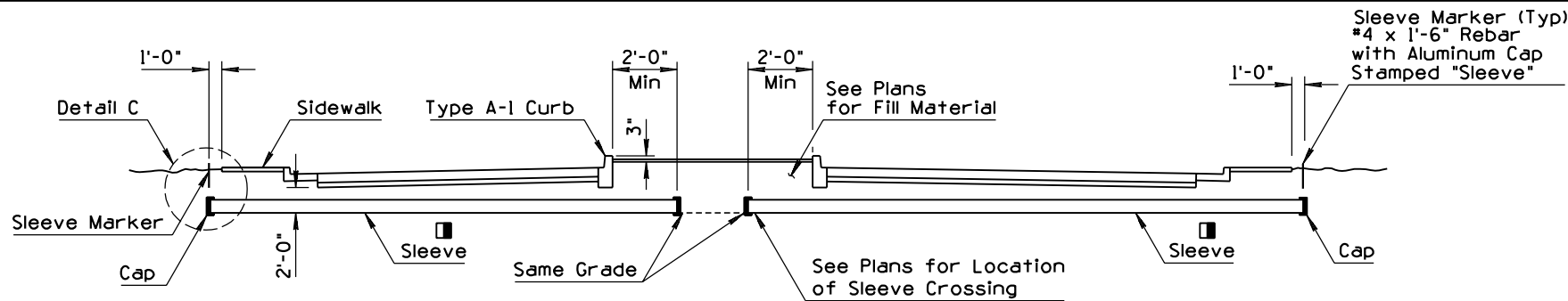
▲ Beveled side of grate toward barrier

## NOTE TO DESIGNERS

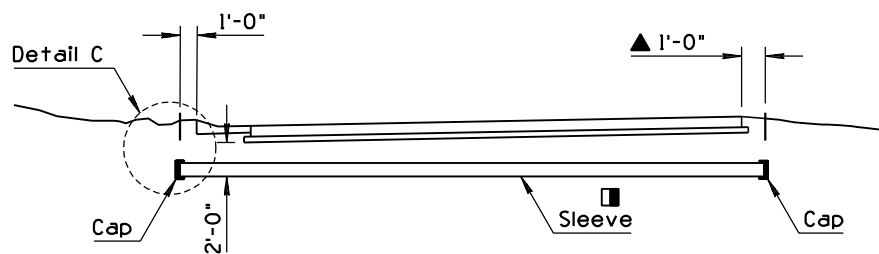
Grate design shown is not suitable for locations subject to bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.

APPROVED FOR DESIGN <i>May Vipawina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 4/06
APPROVED FOR DISTRIBUTION <i>John Smith</i>	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. ① C-15.92 Sheet 2 of 2

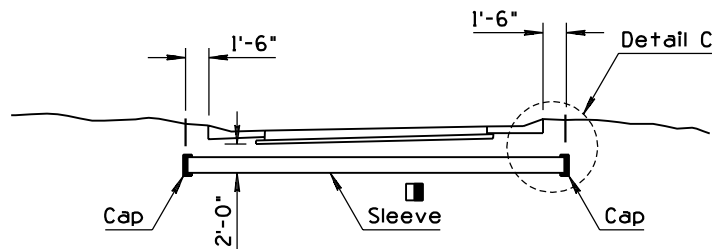
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GRAPHICS	RLF	9/04
2			
3			
4			



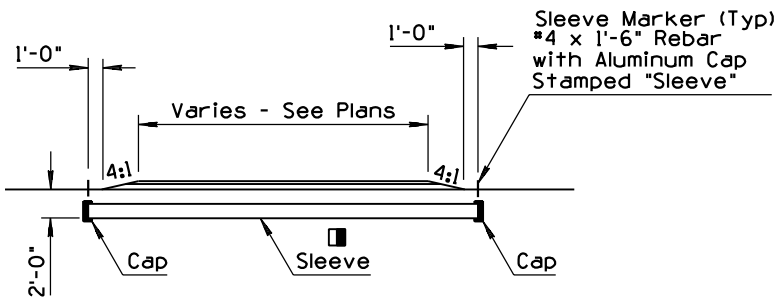
SLEEVE UNDER CROSSROAD



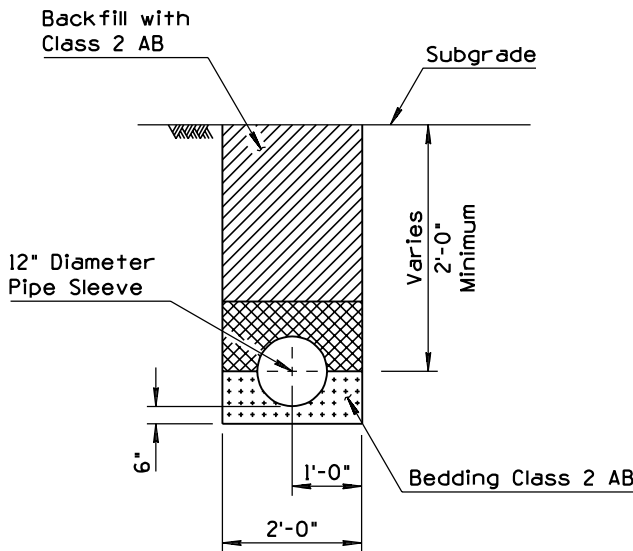
SLEEVE UNDER MAINLINE



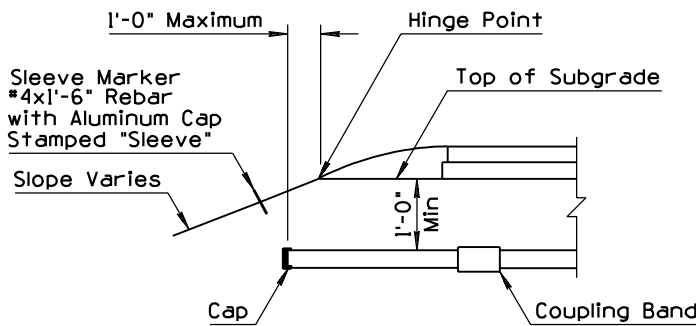
SLEEVE UNDER RAMP



SLEEVE UNDER DRIVEWAYS  
AND PARKING AREAS



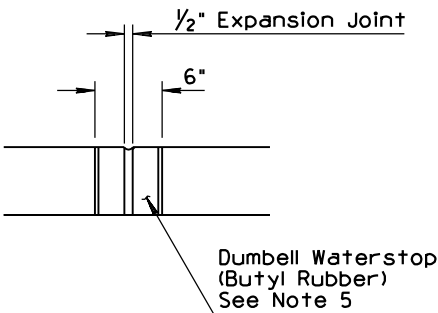
TYPICAL INSTALLATION



DETAIL C  
SLEEVE TERMINATION  
AT ELEVATED ROADWAY

GENERAL NOTES

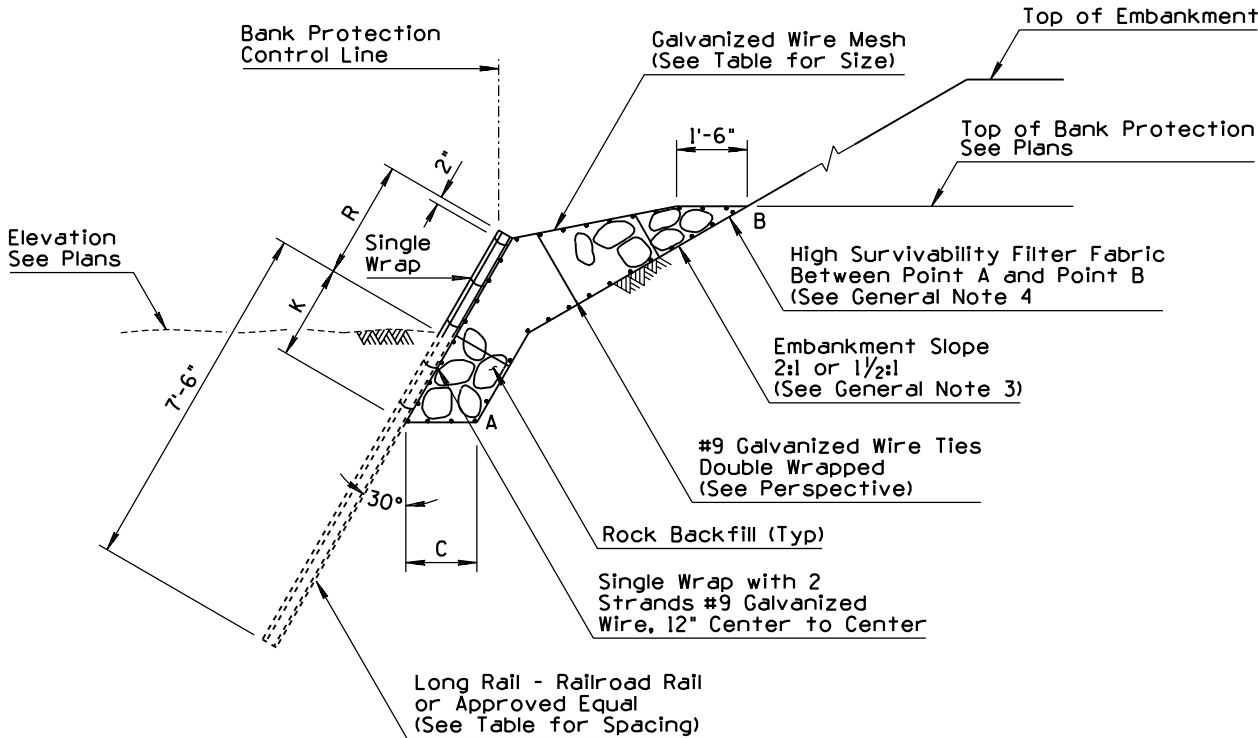
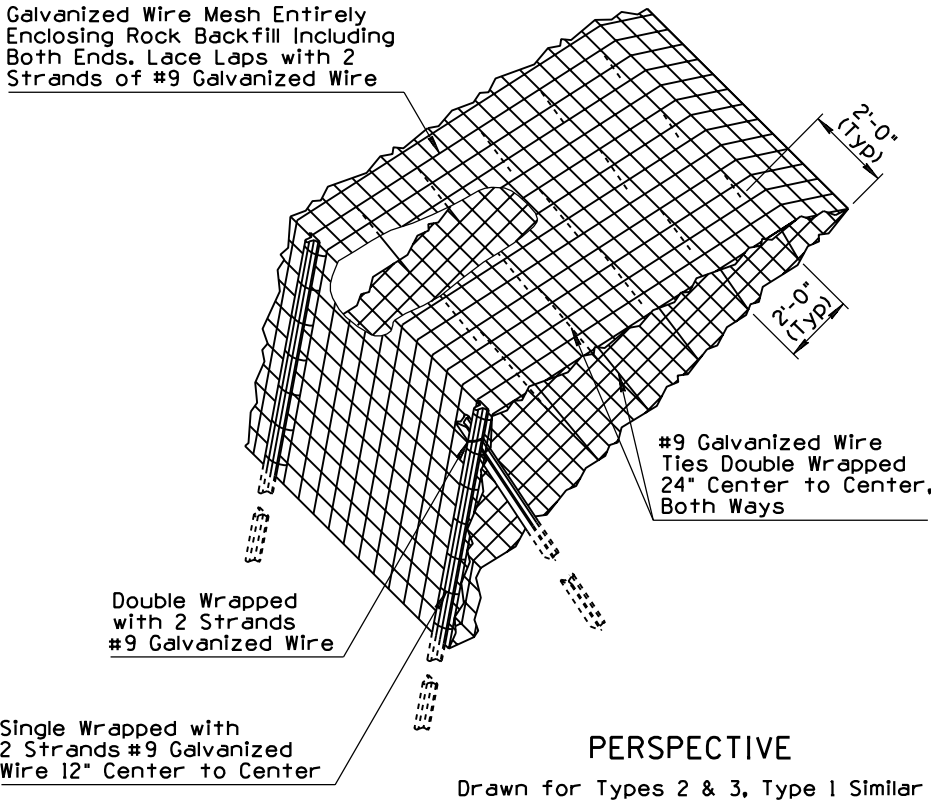
1. Irrigation sleeves shall be installed in a trench condition. See Std Dwg C-13.15.
  2. Bedding and backfill material shall be Class 2 AB.
  3. Pipe installation shall conform to Section 501 of Std Specs.
  4. The contractor shall imprint a 4"± high letter "S" on the face of all curbs at sleeve locations. The width of the letter shall be 1/2" and shall penetrate the concrete surface 1/2".
  5. For non-continuous sleeves under crossroads, Std Dwg C-05.10 Type "A-1" curb shall be required where median is irrigated. See plans for locations. Dumbell waterstop shall be at all expansion joints.
  6. Materials used for caps or plugs shall be as recommended by the pipe supplier and approved by the Engineer.
- Sleeves shall be installed parallel to the roadway subgrade. Slope may vary in superelevated sections. Minimum slope nominal to drain.
- ▲ 2'-0" Back of Curb Median



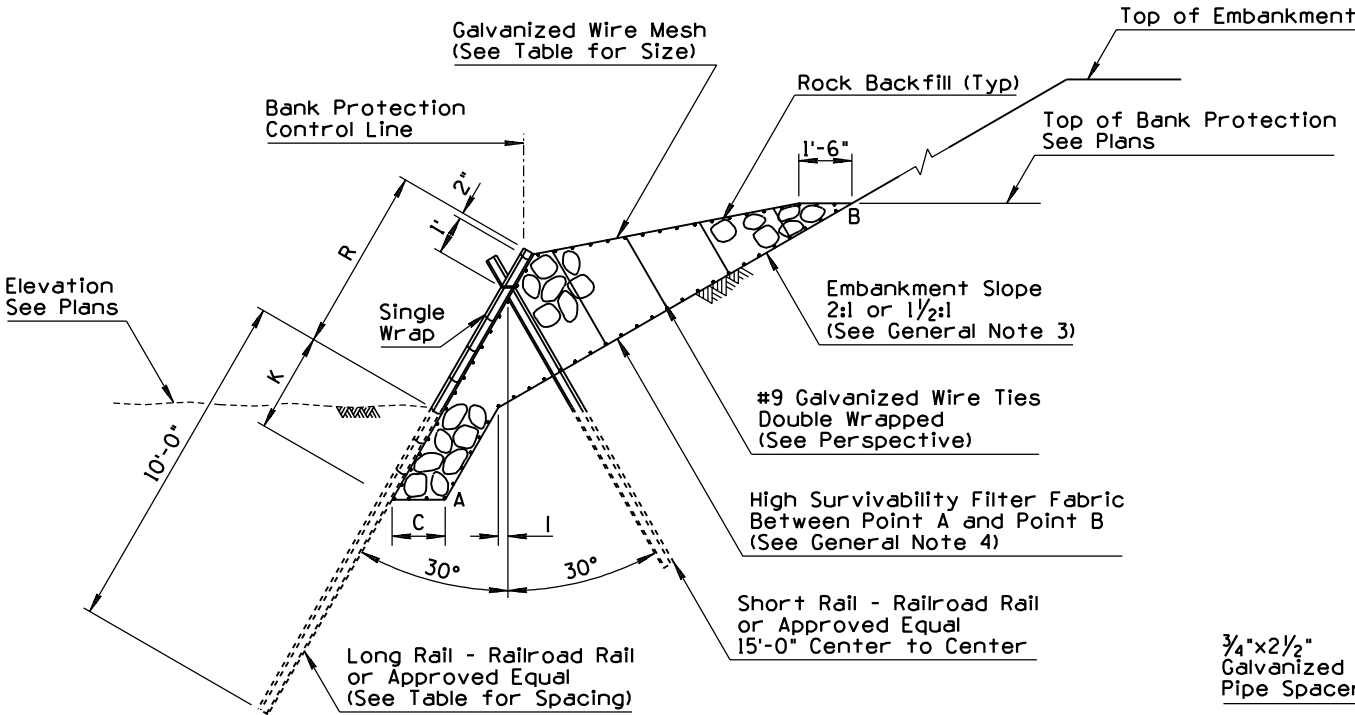
DUMBELL WATERSTOP

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	IRRIGATION SLEEVES	DRAWING NO. C-16.40

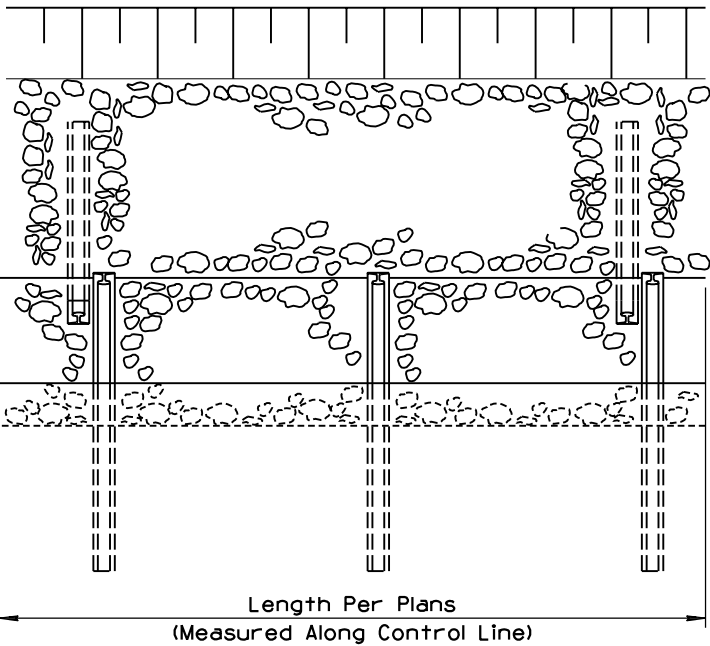
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD	RLF	9/04
2			
3			
4			



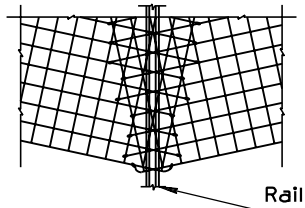
TYPE 1 BANK PROTECTION



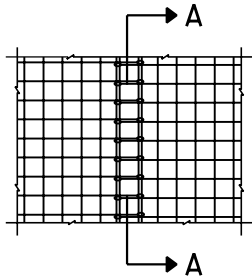
TYPE 2 AND 3 BANK PROTECTION



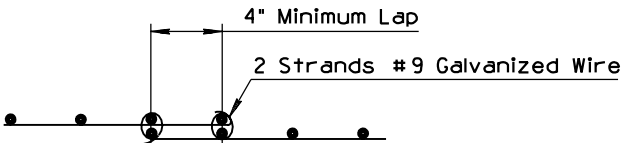
PLAN OF CHANNEL BANK PROTECTION



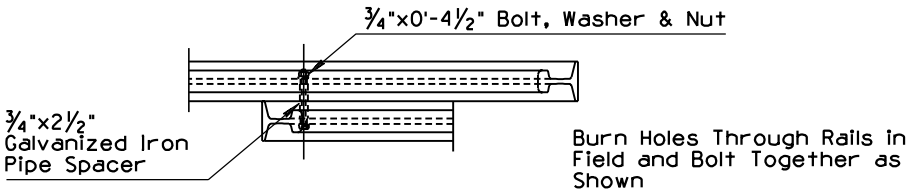
ELEVATION AT CHORD POINT ON CURVE



ELEVATION ON STRAIGHT SECTION



SECTION A - A  
WIRE MESH SPLICE DETAILS



RAIL CONNECTION DETAIL

Type	SHORT RAIL LENGTH (Ft)	SHORT RAIL WT (Lbs/Yd)	LONG RAIL LENGTH (Ft)	LONG RAIL WT (Lbs/Yd)	LONG RAIL SPACING (Ft-In) (Center to Center)	MESH DESIGNATION	C (Ft-In)	I (Ft)	K (Ft-In)	R (Ft-In)	TOP OF BANK PROTECTION ABOVE THE STREAM BED (Ft)
1	N/A	N/A	10	20 Min	7-0	3"x3"-W1.4/W1.4	1-6	0	2-0	2-6	2 to 4
2	10	20 Min	15	50 Min	7-6	or	1-6	0	3-0	5-0	4 to 7
3	12	20 Min	17	50 Min	7-6	4"x4"-W1.4/W1.4	2-0	1	4-0	7-0	6 to 12

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 9/04
APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	① RAIL BANK PROTECTION FOR DRAINAGEWAYS TYPES 1, 2 & 3	DRAWING NO. C-17.10

PLAN OF BANK PROTECTION AT ABUTMENT

Construct on Two Panel Chords Around Curves

TYPICAL SECTION  
See Perspective Std Dwg C-17.10

Type Per Plans	x (Ft-In)	Minimum Rail Length (Ft)		Minimum Rail Weight (Lbs/Yd)
		Long Rail	Short Rail	
4	5-0	22	10	50
5	7-6	25	13	50
6	10-0	28	16	50

GENERAL NOTES

1. Rock shall conform to Section 913-2.01(A) of the Standard Specifications. The rock shall have a minimum nominal diameter no smaller than the mesh opening, and a maximum nominal diameter of 12".
2. All mesh wire, tie wire, cable, bolts, washers and nuts shall be galvanized.
3. When other embankment slope rates are encountered, warp to 1 1/2:1 or 2:1.
4. High survivability filter fabric shall conform to Section 913-2.05 of the Standard Specifications.
5. All wire mesh on a single project shall have the same mesh opening.

ELEVATION AT CHORD POINT ON CURVE

ELEVATION ON STRAIGHT SECTION

SECTION  
WIRE MESH SPLICE DETAILS

SECTION ON ROADWAY

RAIL CONNECTION DETAIL  
Burn Holes Through Rails In Field and Bolt Together as Shown

APPROVED FOR DESIGN

*May Viparina*

APPROVED FOR DISTRIBUTION

*John Smith*

STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
ROADWAY STANDARD DRAWINGS

RAIL BANK PROTECTON  
AT ABUTMENTS  
TYPES 4, 5 & 6

REV.

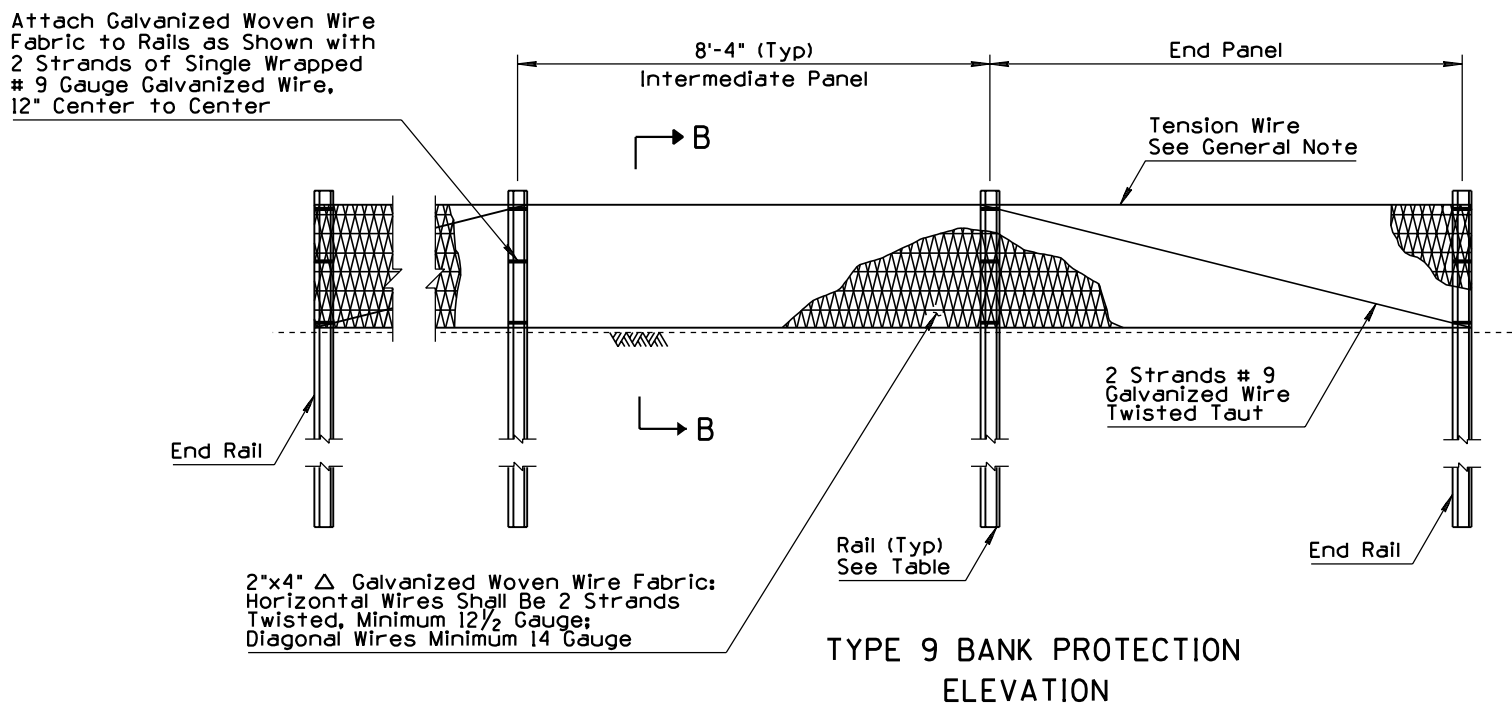
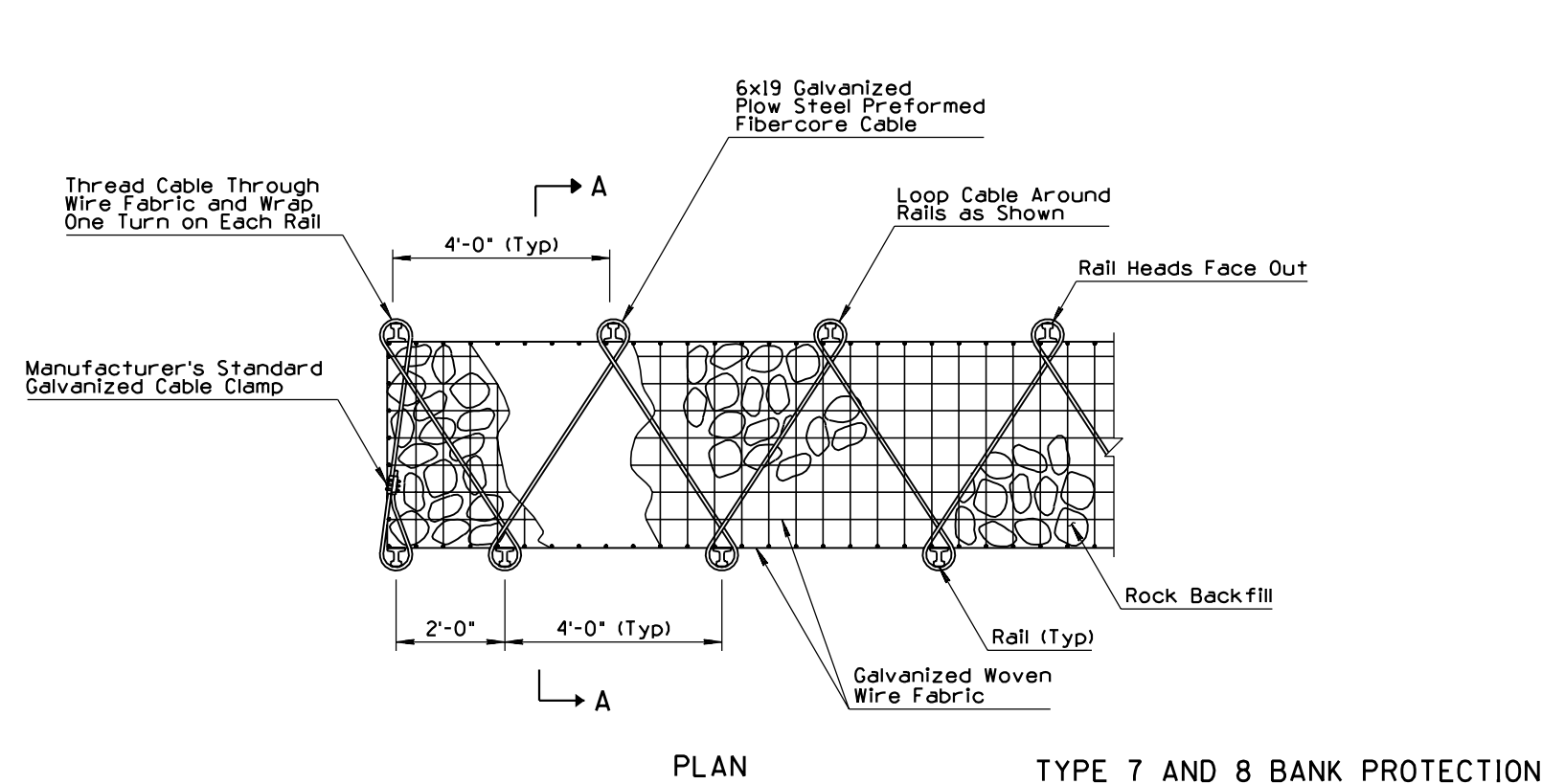
9/04

DRAWING NO.

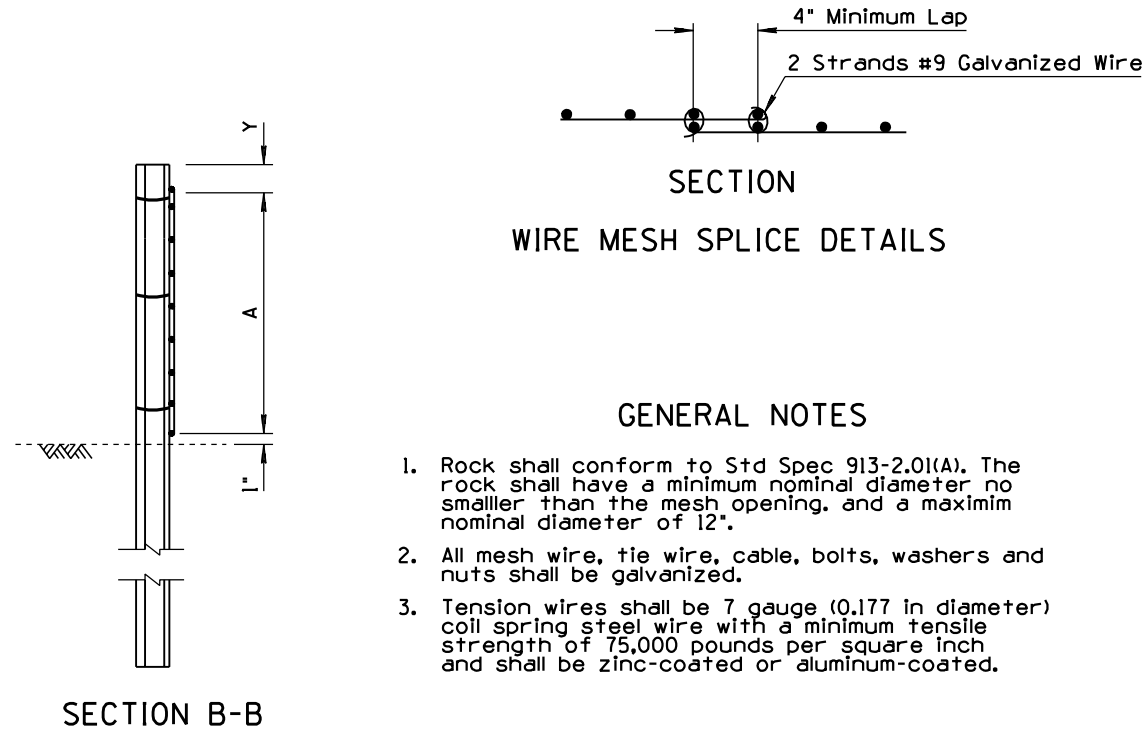
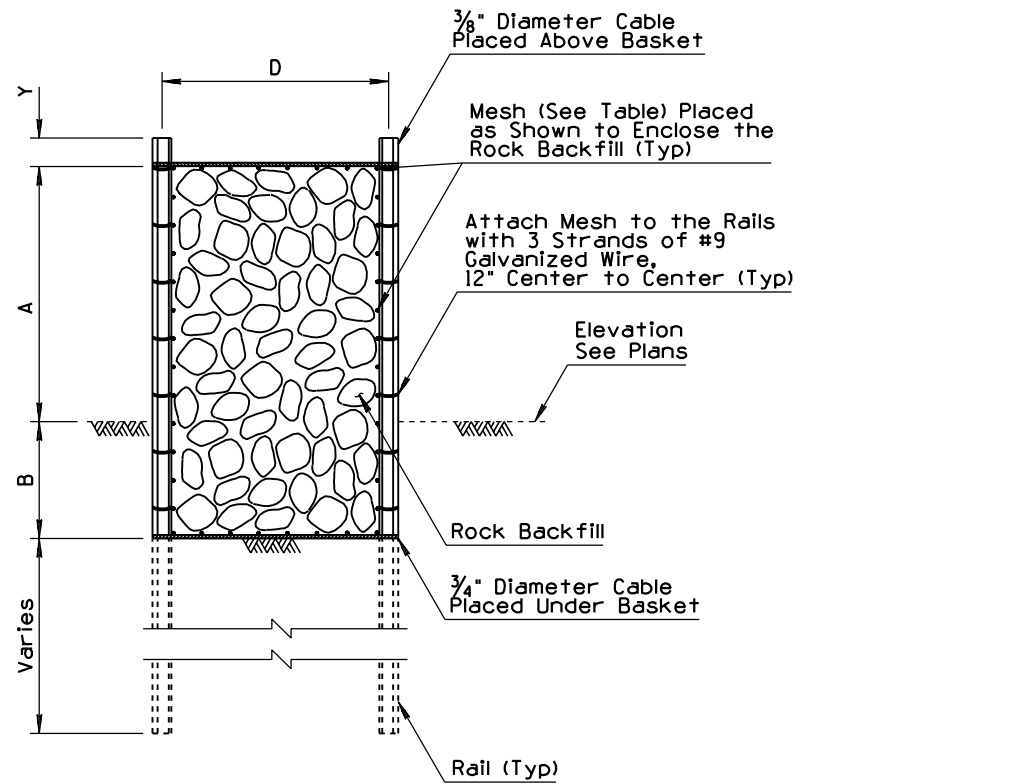
C-17.15

APPROVED FOR DESIGN <i>Mary Viparina</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV.  9/04
APPROVED FOR DISTRIBUTION <i>John [Signature]</i>	RAIL BANK PROTECTION AT ABUTMENTS TYPES 4, 5 & 6	DRAWING NO.  C-17.15

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STANDARD	RLF	9/04
2			
3			
4			



Type	MIN RAIL LENGTH (Ft)	MIN RAIL WT (lbs/Yd)	MESH	A (Ft-In)	B (Ft-In)	D (Ft)	Y (In)
7	15	50	3"x3"-W1.4/W1.4 or	4 - 0	2 - 0	4	6
8	18	50	4"x4"-W1.4/W1.4	7 - 0	3 - 0	5	6
9	10	15	N/A	2 - 2	N/A	N/A	3



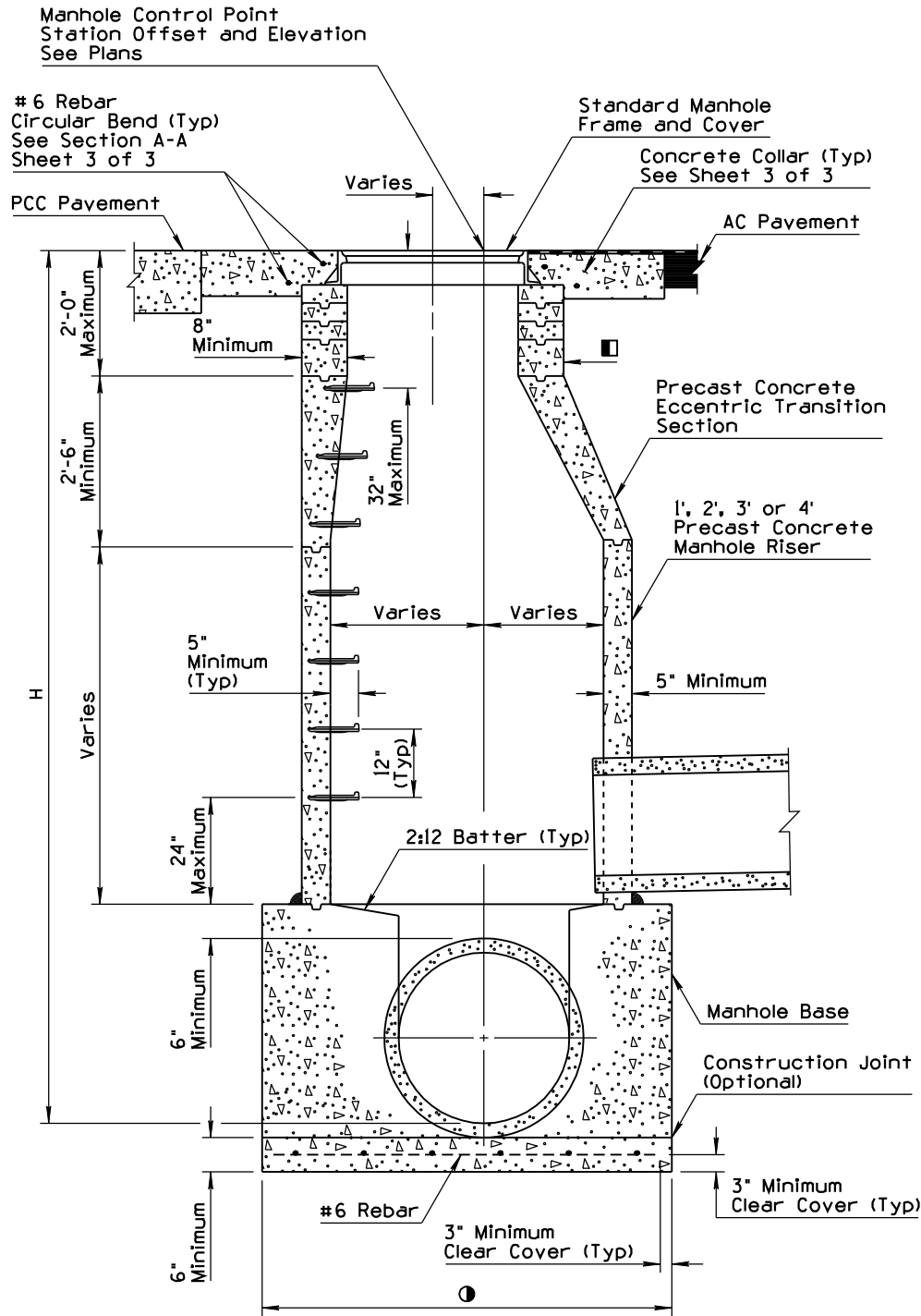
SECTION  
WIRE MESH SPLICE DETAILS

#### GENERAL NOTES

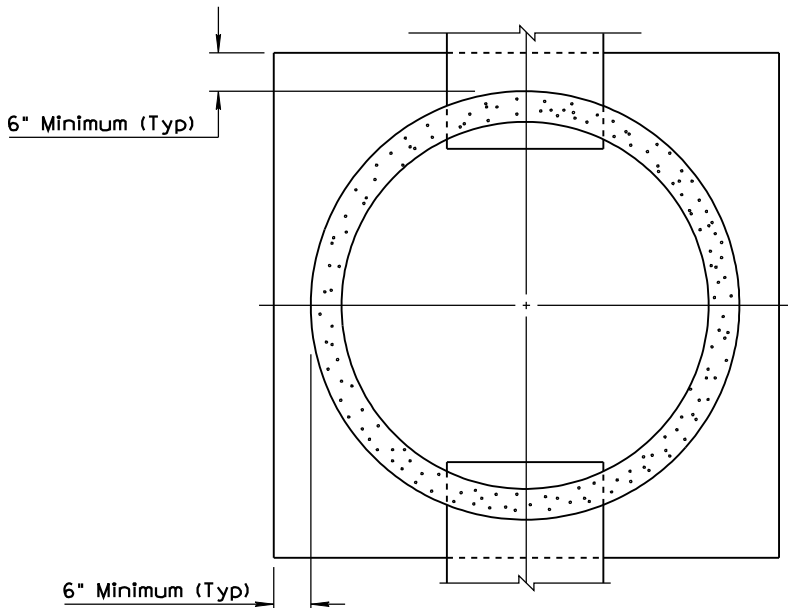
1. Rock shall conform to Std Spec 913-2.01(A). The rock shall have a minimum nominal diameter no smaller than the mesh opening, and a maximum nominal diameter of 12".
2. All mesh wire, tie wire, cable, bolts, washers and nuts shall be galvanized.
3. Tension wires shall be 7 gauge (0.177 in diameter) coil spring steel wire with a minimum tensile strength of 75,000 pounds per square inch and shall be zinc-coated or aluminum-coated.

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	RAIL BANK PROTECTION FOR DRAINAGEWAYS TYPES 7, 8 & 9	DRAWING NO. <b>C-17.20</b>

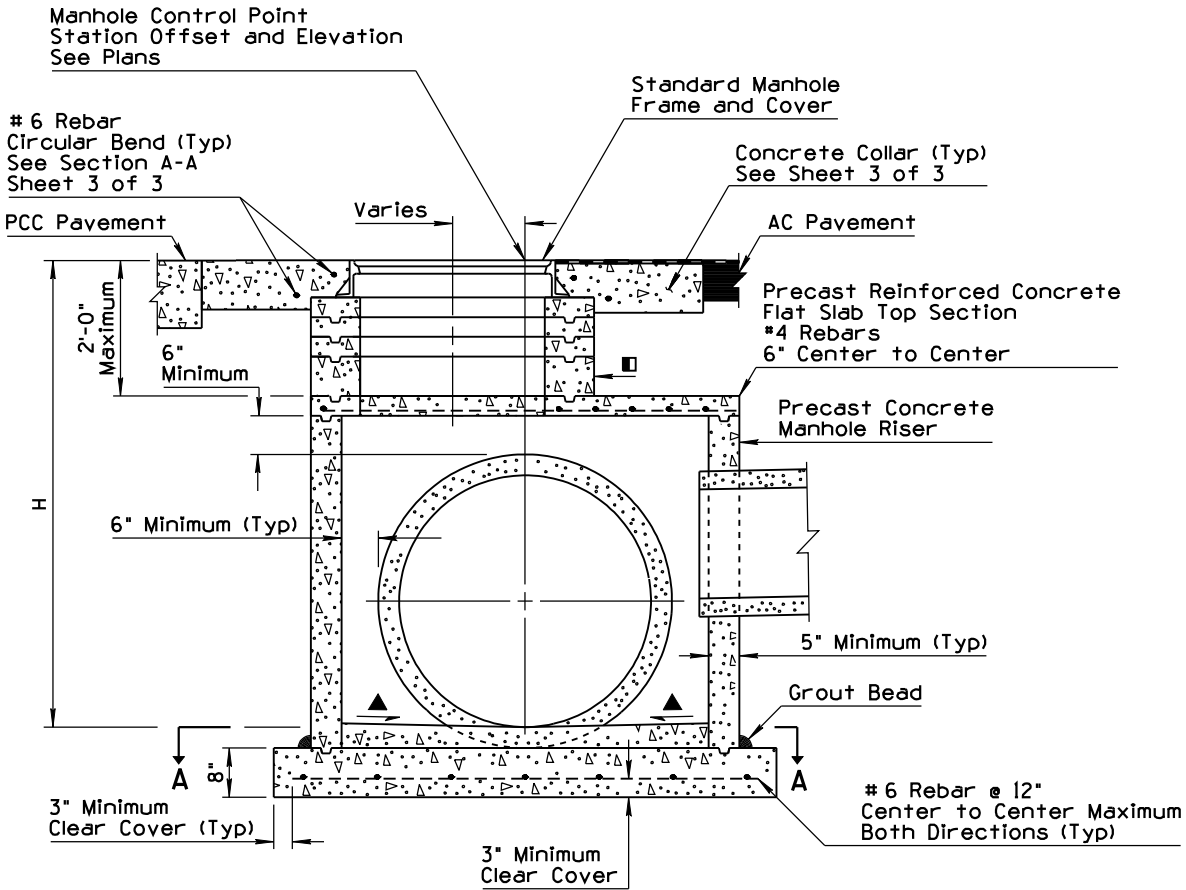
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG FROM C-18.40 TO C-18.10, SHEET 1 OF 3	RLF	9/04
2	REVISED GENERAL NOTE	RLF	7/05
3			
4			



SECTION  
NORMAL INSTALLATION  
STANDARD BASE



SECTION A-A



SECTION  
SHALLOW INSTALLATION  
SLAB BASE

GENERAL NOTES

1. Pipe sizes and elevations are shown on plans.
2. The manhole height, H, shall be measured from the lowest invert elevation to the top of the manhole frame.
3. Concrete for cast-in-place manholes shall be Class B.
- ② 4. All manholes deeper than 56 inches shall have steps. Manhole steps shall be constructed in accordance with AASHTO M199. Where precast manholes are used, the steps shall be installed at the same time sections are cast.
5. Per OSHA requirements, special treatments to include landings are required for heights exceeding 30 ft.
6. Precast manhole sections shall be manufactured in accordance with AASHTO M199, except that the compressive strength of each section shall be determined and accepted in accordance with Std Spec 1006-7.
7. Manhole location and elevation shall be as shown on plans. See Sheet 1 of 3 for station location reference point.
- ② 8. Backfill material shall be compacted to at least 95 percent of the maximum density per the applicable test method of the ADOT Materials Testing Manual.
  - 4", 6", 8" or 12" (30" Inside Diameter) Grade Rings
  - ▲ 1/4"/ft
  - See Sheet 2 of 3

APPROVED FOR DESIGN

*Mary Viparina*

STATE OF ARIZONA  
DEPARTMENT OF TRANSPORTATION  
ROADWAY STANDARD DRAWINGS

REV.

7/05

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*John Smith*

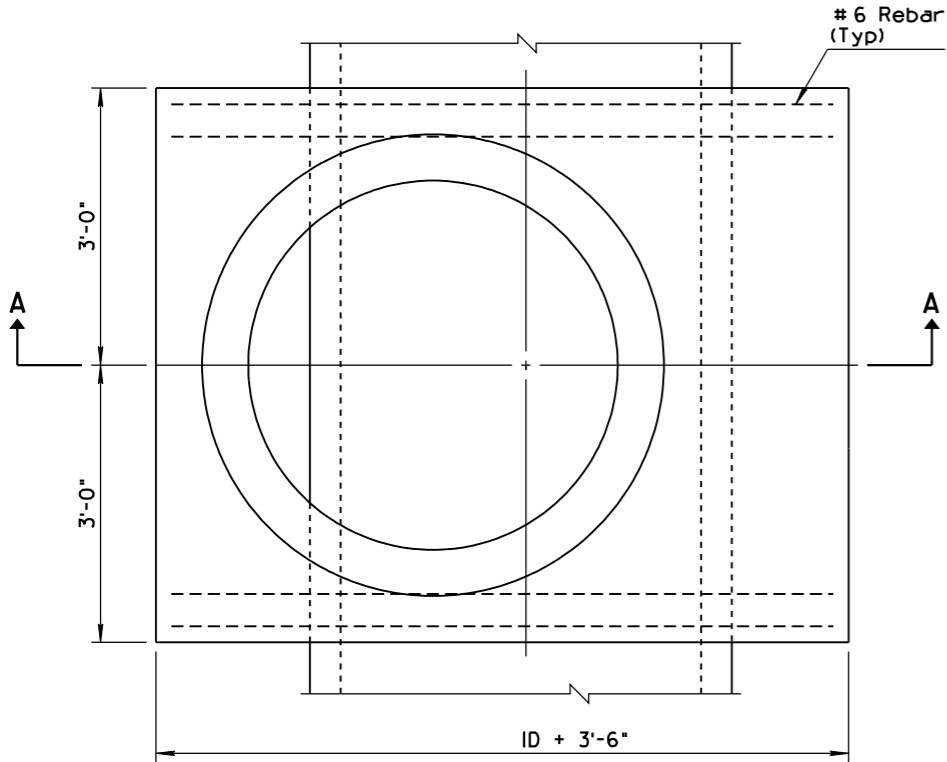
MANHOLE  
RISER DETAILS

DRAWING NO.

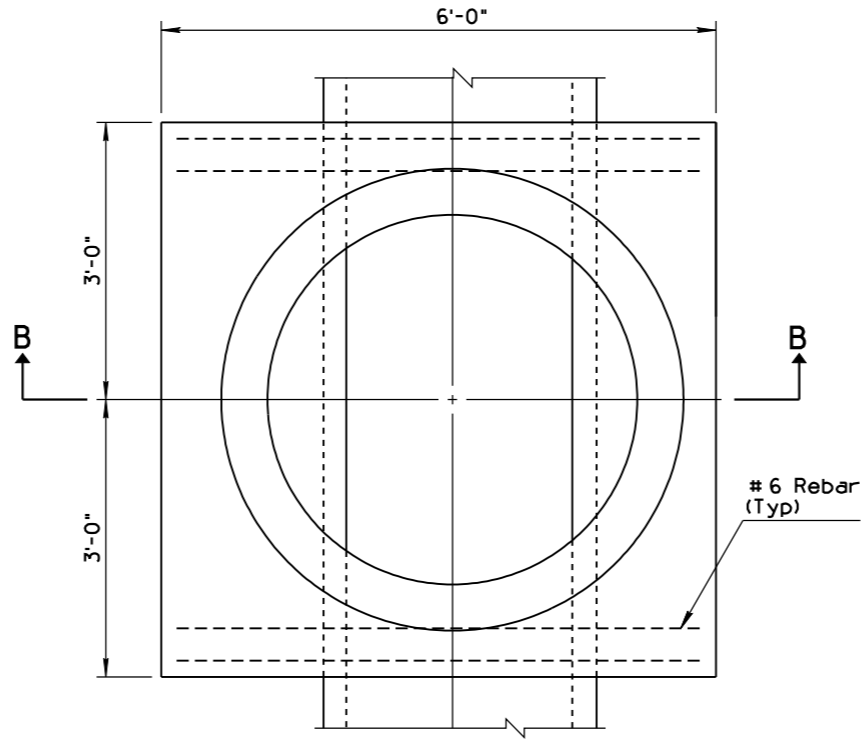
①

C-18.10  
Sheet 1 of 3

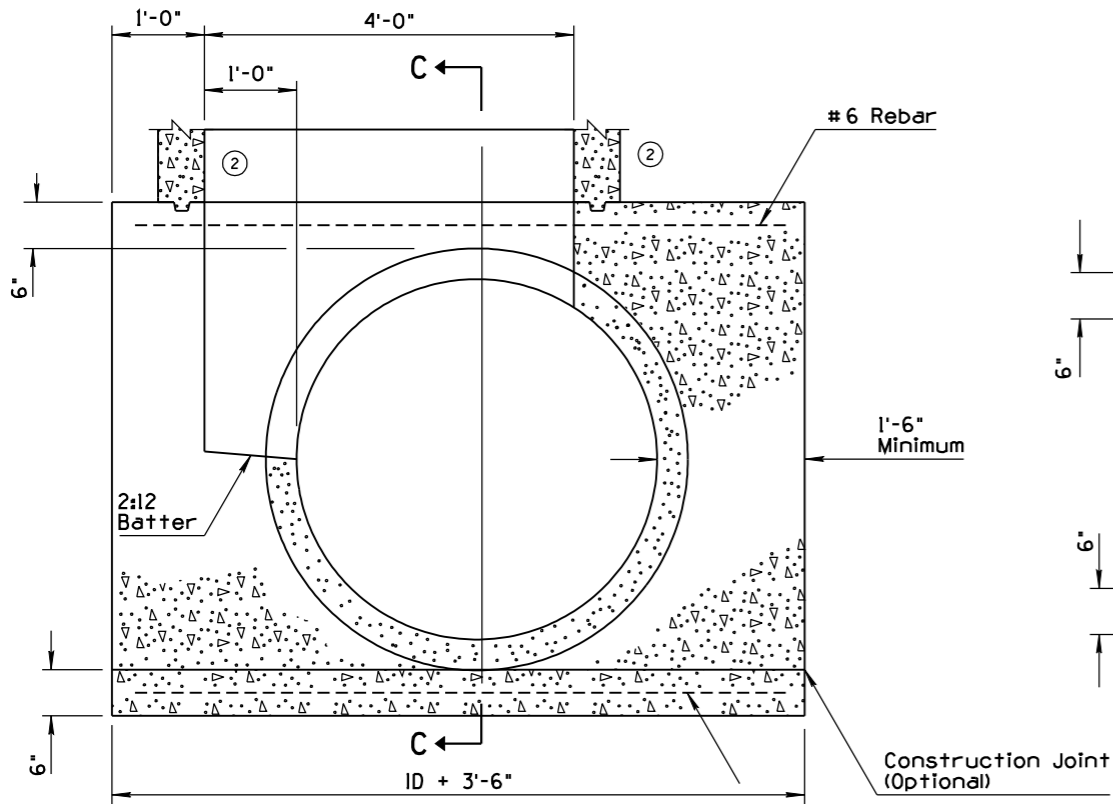
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	RENAMED STD DWG TO C-18.10, SHEET 2 OF 3	RLF	9/04
2	REVISED SECTION A-A THROUGH C-C GRAPHICS	RLF	4/06
3			
4			



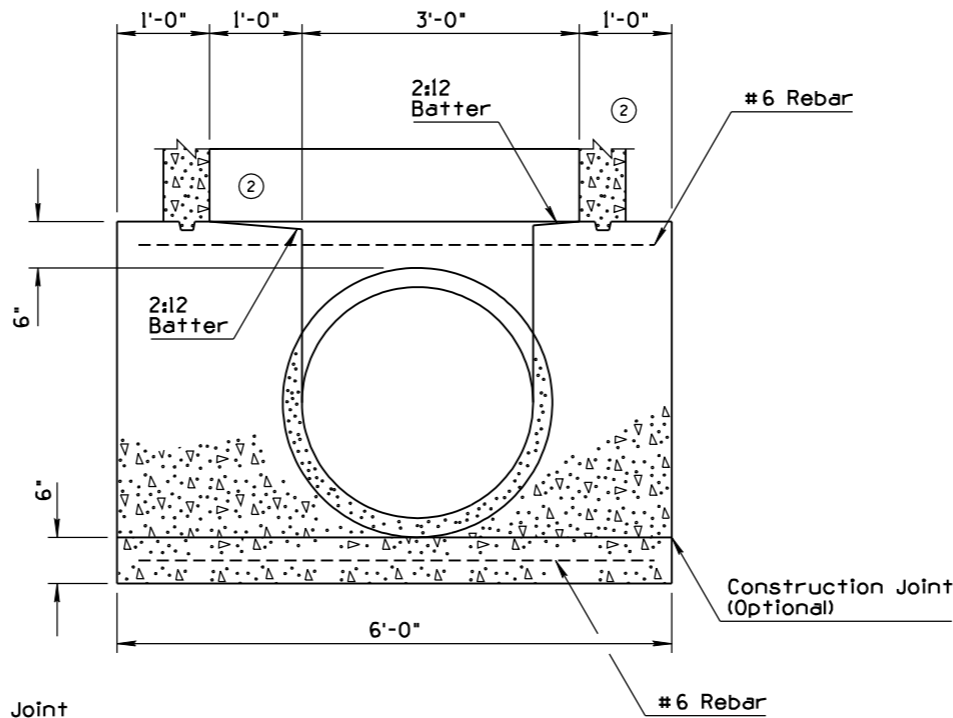
PLAN  
FOR PIPES OVER 36" ID



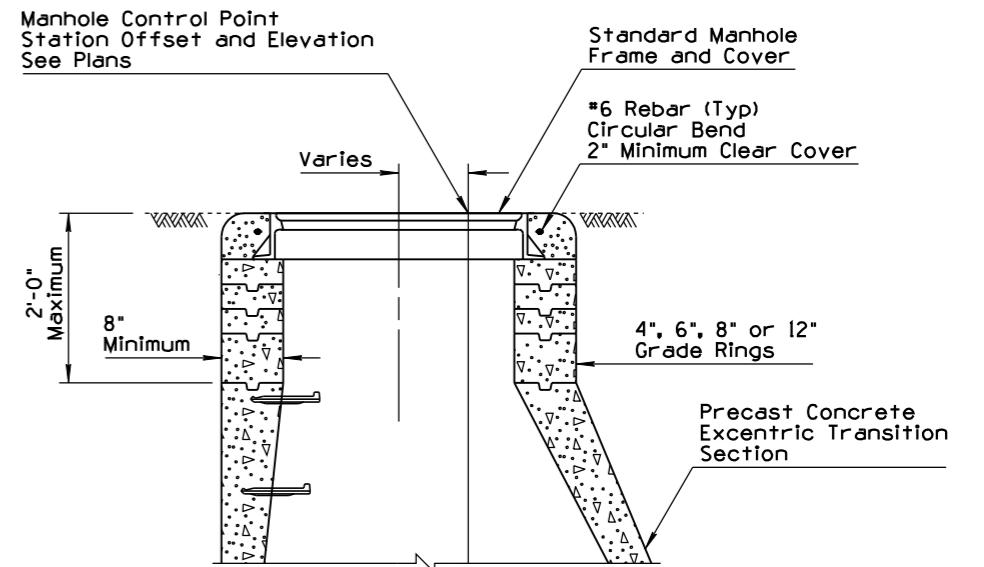
PLAN  
FOR PIPES 36" ID AND SMALLER



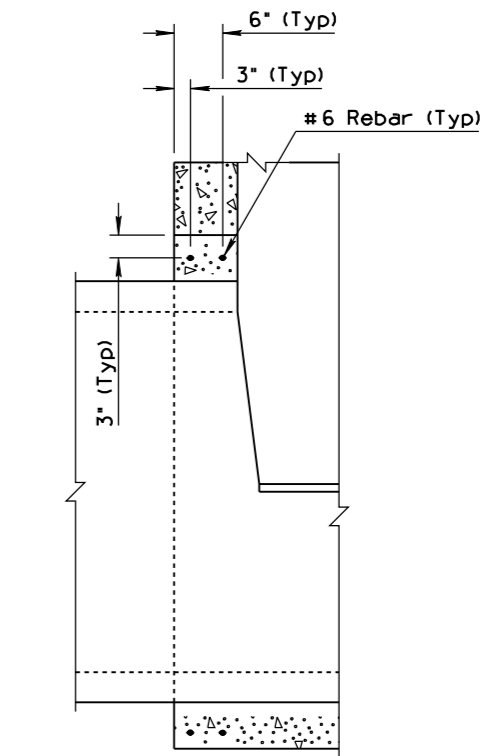
SECTION A-A  
STANDARD BASE STRUCTURE  
FOR PIPES OVER 36" ID



SECTION B-B  
STANDARD BASE STRUCTURE  
FOR PIPES 24" TO 36" ID



SECTION  
RING, FRAME & COVER  
NON-PAVEMENT INSTALLATION



SECTION C-C

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APPROVED FOR DISTRIBUTION <i>John Smith</i>	MANHOLE BASE DETAILS NORMAL INSTALLATION	DRAWING NO. ① C-18.10 Sheet 2 of 3

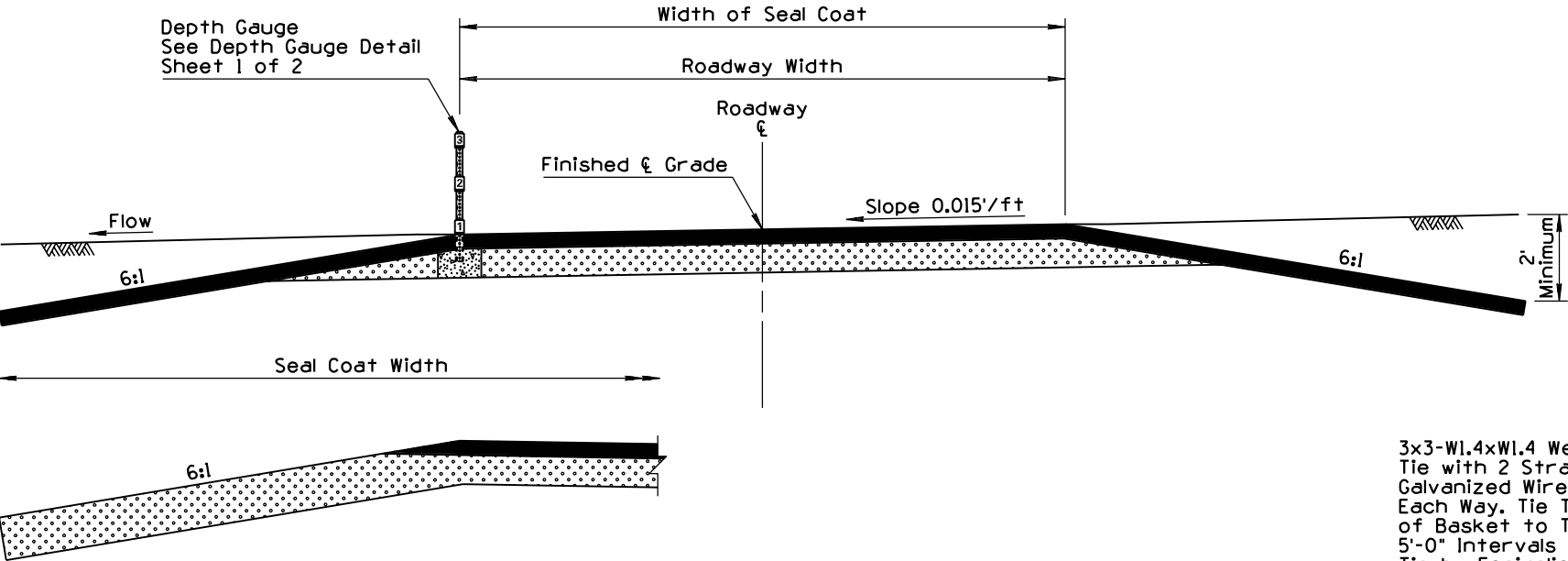




NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REISSUED STD AS C-19.10, SHEET 2 OF 2	RLF	9/04
2	DELETED ORIGINAL GENERAL NOTE 4	RLF	9/04
3			
4			

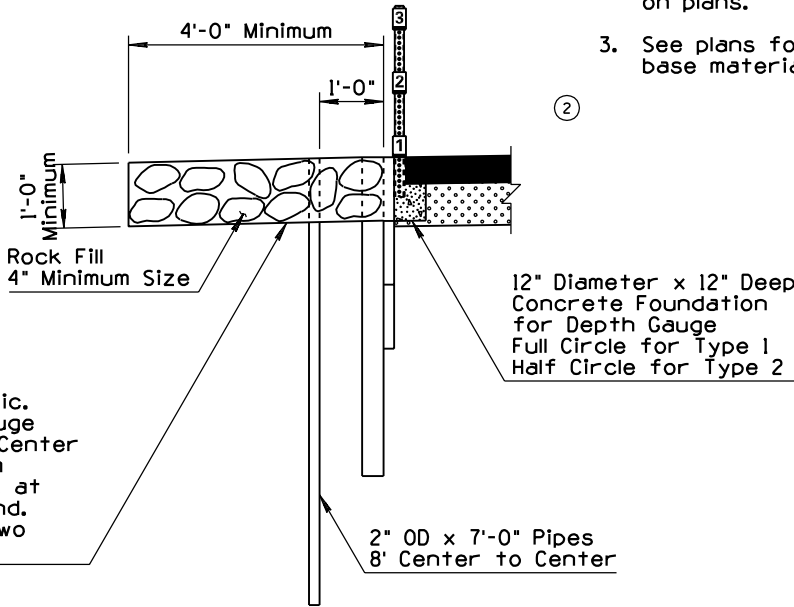
GENERAL NOTES

1. All timber shall be rough, pressure treated and unpainted.
2. Rock basket, full length of structure, shall be included only when called for on plans.
3. See plans for bituminous surface and base material details.

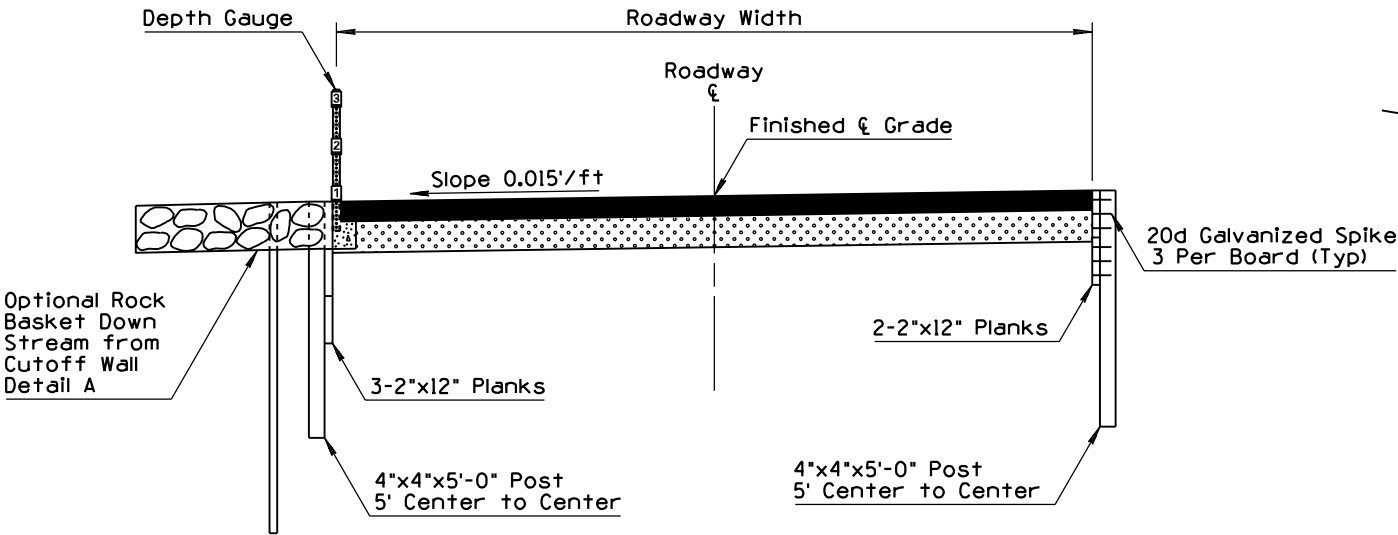


WITH TREATED BASE

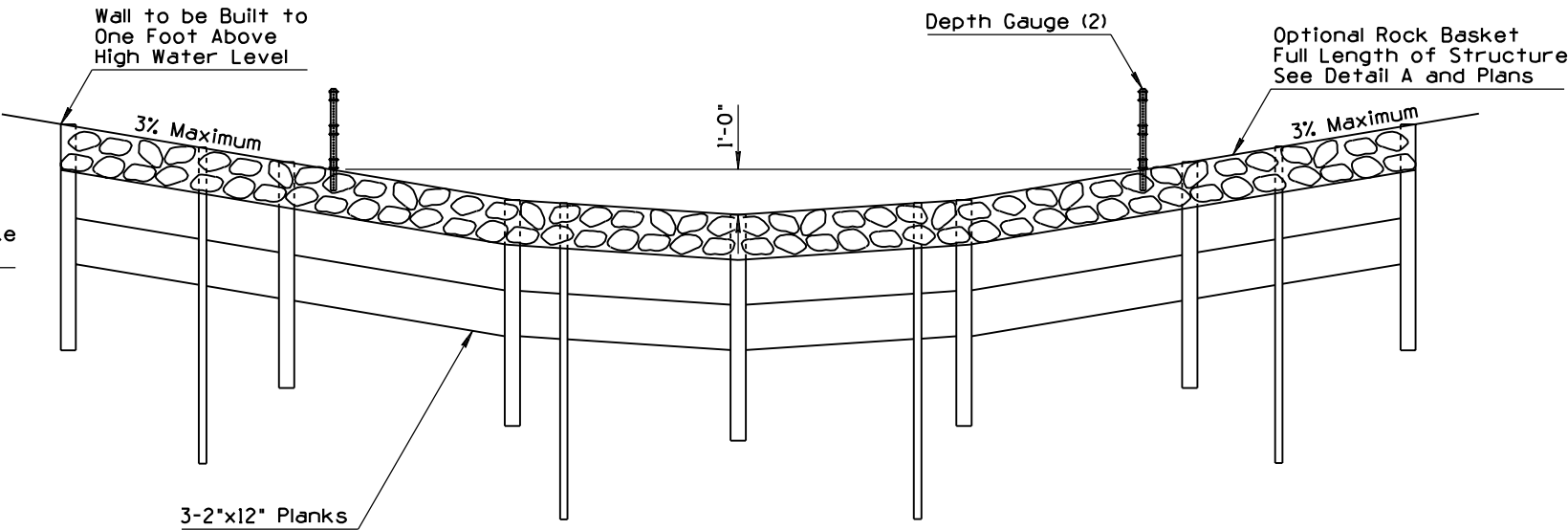
TYPE 1  
BITUMINOUS SURFACE ROAD



DETAIL A



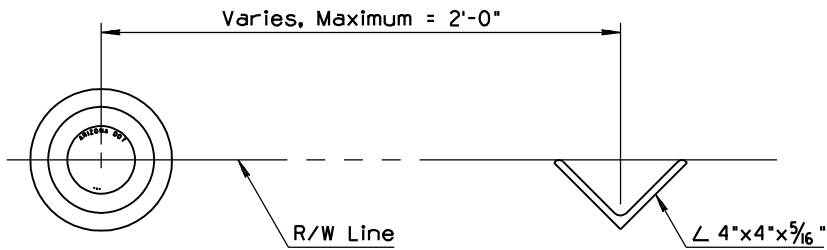
TYPE 2  
BITUMINOUS SURFACE FORD  
TIMBER CUTOFF WALLS



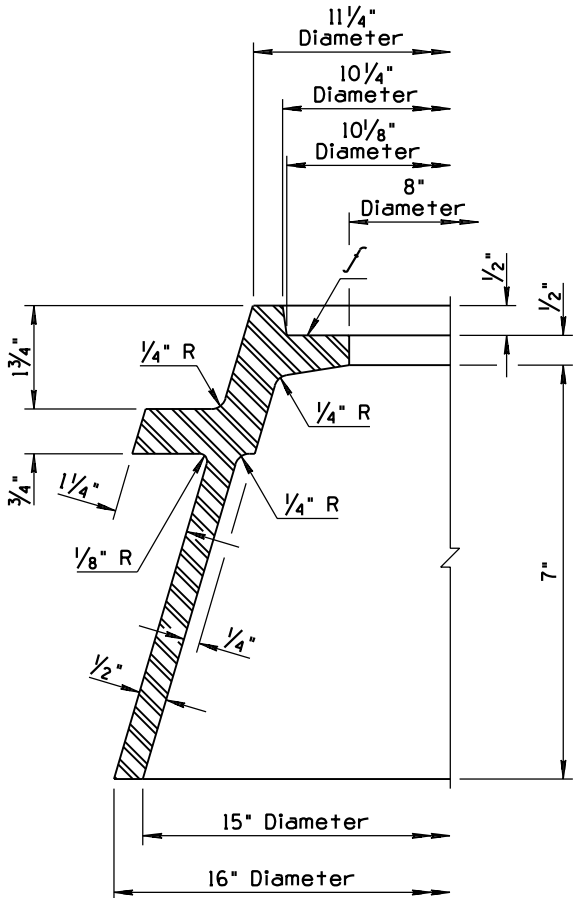
ELEVATION - TYPE 2

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	FORD TYPES 1 AND 2	DRAWING NO. C-19.10 Sheet 2 of 2

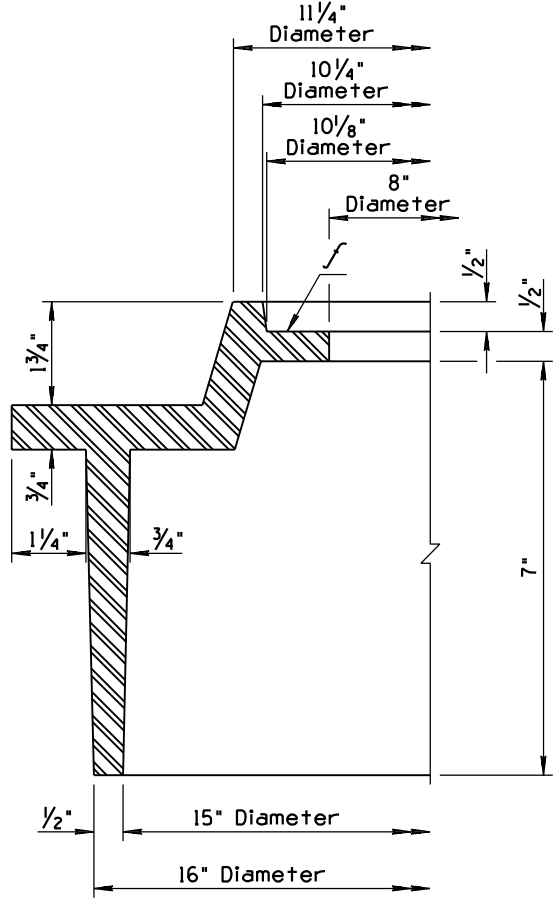
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED REFERENCE MARKER LETTERING	RLF	9/04
2	REVISED DIMENSION	RLF	9/04
3	REVISED GENERAL NOTE 7	RLF	9/04
4	REVISED SHANK	RLF	9/04



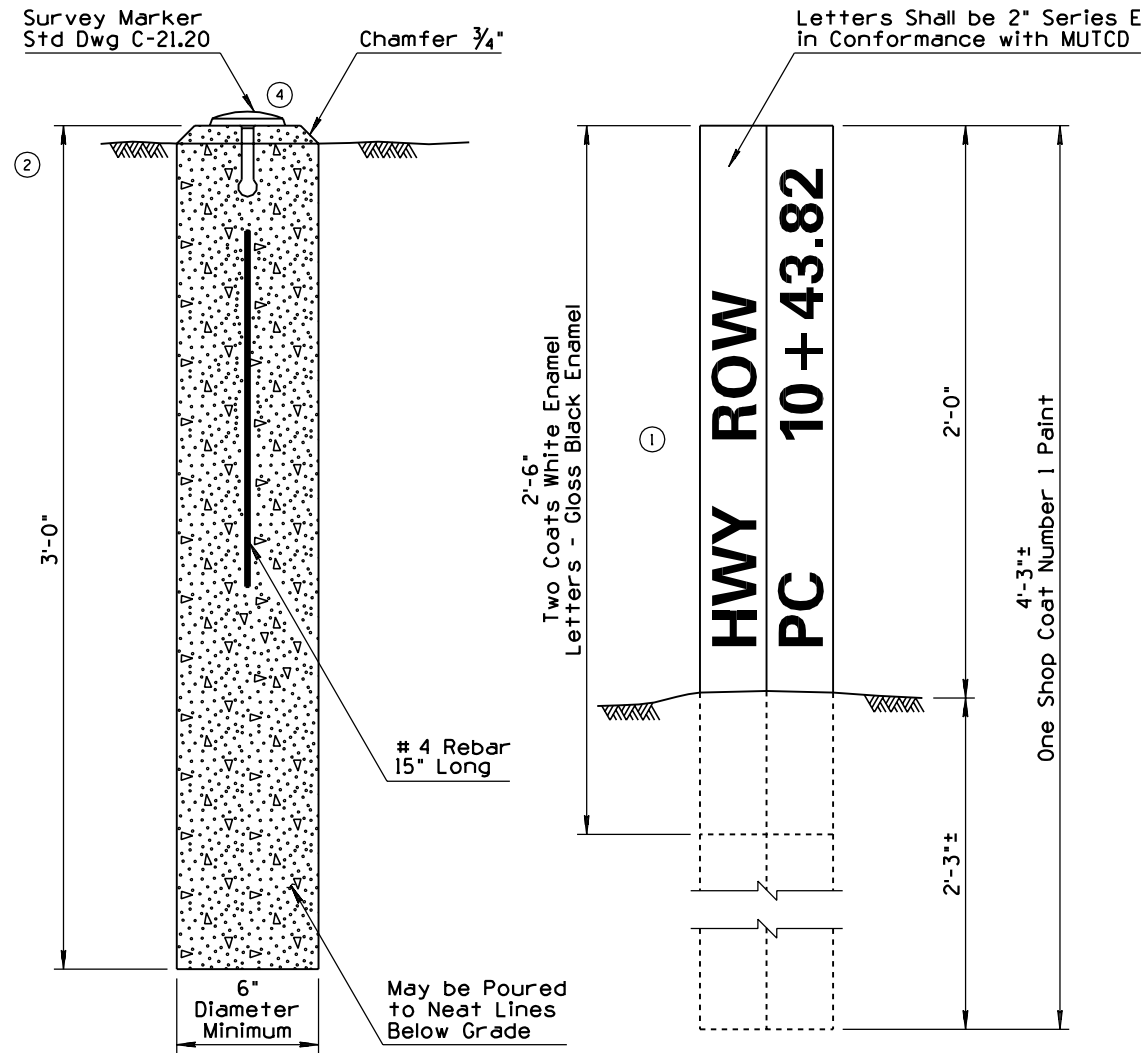
PLAN



FRAME A



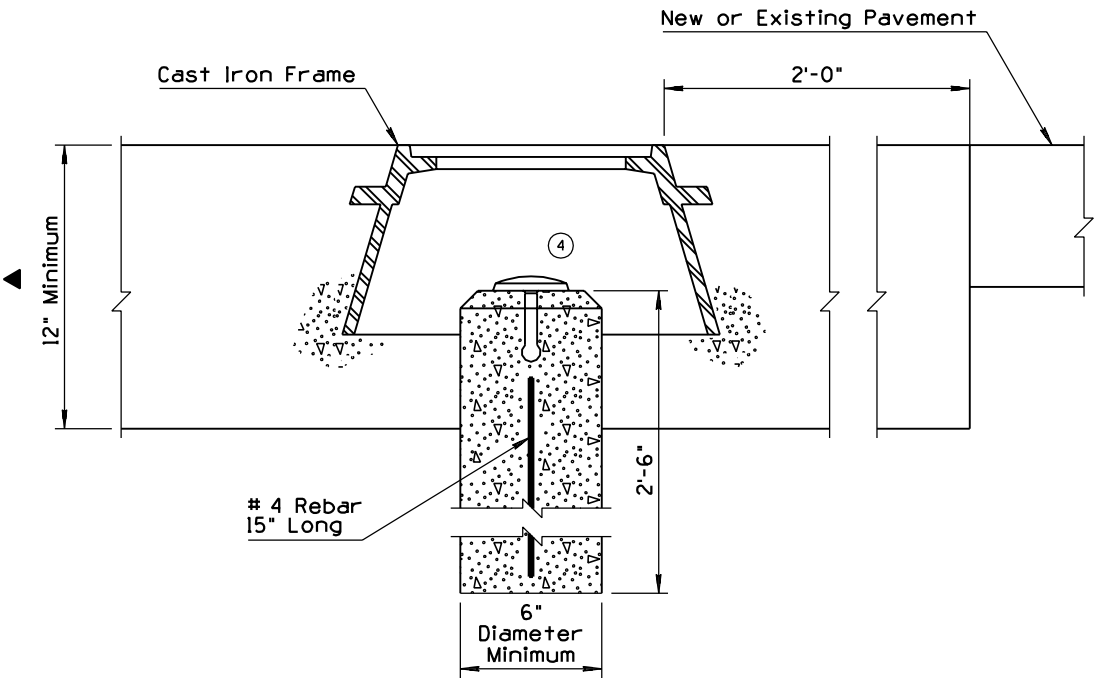
FRAME B



ELEVATION  
SURVEY MONUMENT

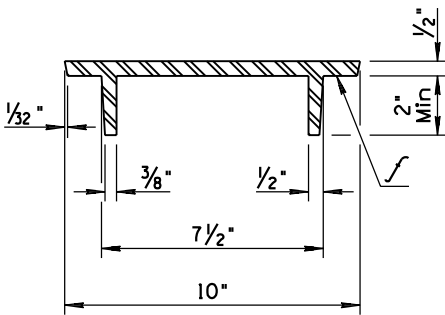
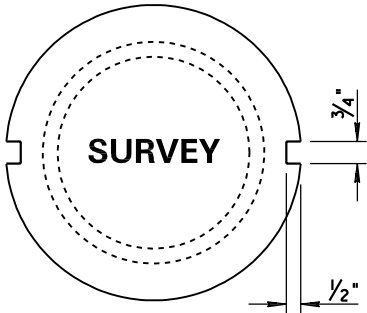
ELEVATION  
REFERENCE MARKER

RIGHT-OF-WAY MARKER



SURVEY MONUMENT  
FRAME AND COVER

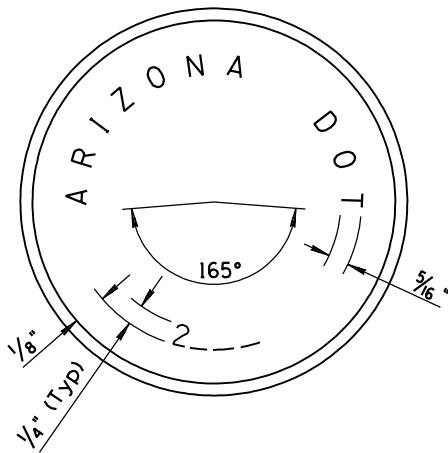
1. A survey monument and frame & cover, complete-in-place, shall be considered a unit.
2. A Right-of-Way marker, consisting of a survey monument and a reference marker, complete-in-place, shall be considered a unit.
3. All markers shall be placed as shown on the plans or as directed by the Engineer.
4. Frames may be either Type A or Type B.
5. Frames shall weigh at least 53 pounds.
6. Covers shall weigh at least 16 pounds.
- ③ 7. Machined portions of the frame and cover are shown by the symbol "f". The allowable tolerance for machined areas is  $\pm 1/64$  ". Concrete shall conform to Std Spec 922.
8. Survey monuments shall be magnetically detectable.
- ▲ 12" or pavement structure thickness, whichever is greater.



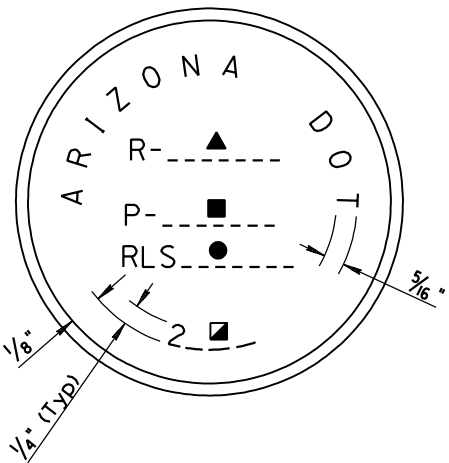
COVER SECTION

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SURVEY MONUMENT FRAME AND COVER RIGHT-OF-WAY MARKER	DRAWING NO. C-21.10

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED GENERAL NOTES	RLF	9/04
2	REVISED SHANK DESIGN CRITERIA	RLF	9/04
3	ADDED DETAIL A - RIGHT-OF-WAY MARKER INFORMATION	RLF	9/04
4			

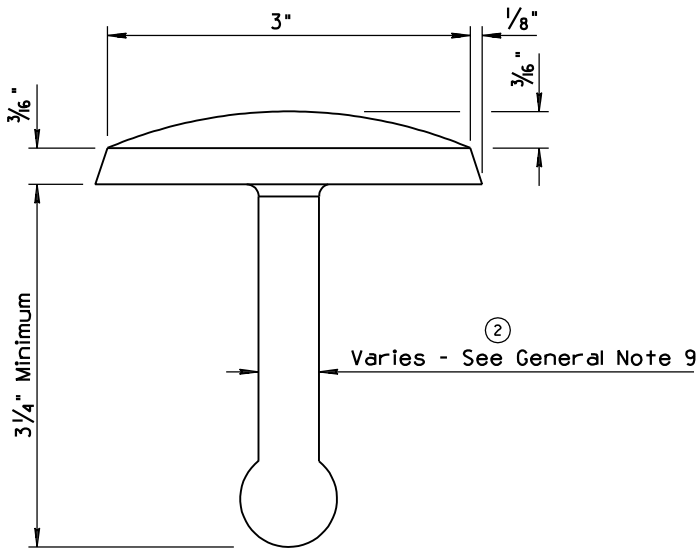


PLAN



DETAIL A  
R/W MARKER INFORMATION

3



ELEVATION  
SURVEY MARKER

1

## GENERAL NOTES

- Survey marker may be used with survey monument, and as bench or R/W markers.
- Survey marker will be furnished by the Department. Cast-in lettering format may vary.
- When used to define section lines, the marker shall be stamped in accordance with the BLM "Manual of Surveying Instructions."
- When used to define R/W not consisting of section lines, the marker shall be stamped in accordance with Detail A, R/W Marker information.
- When used as a R/W marker or to define a section line, the land surveyor's registration number shall be stamped on the marker.
- Bench marks shall be established on headwalls, bridge walls and other permanent structures, as shown on plans or as directed by the Engineer.
- Station, elevation, year, and/or other information shall be hand stamped in field, as approved by the Engineer.
- Survey marker shall be made of brass.
- Shank cross-sectional area shall be a minimum of 0.31 square inches and a maximum of 0.60 square inches. Shank cross-section may vary and is not a critical feature of this standard.
- Shank geometry shall provide for secure anchorage in concrete.
- Text shall not obscure survey point.

- ▲ Right-Of-Way plan number
- Point Number
- Registered Land Surveyor Number - see General Note 5
- ☐ Year

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APPROVED FOR DISTRIBUTION <i>Julia [Signature]</i>	SURVEY MARKER	DRAWING NO. C-21.20